

Department of Millinery

WOMAN'S INSTITUTE of DOMESTIC ARTS & SCIENCES INC.



INSTRUCTION PAPER
With EXAMINATION QUESTIONS

SOLID FOUNDATIONS

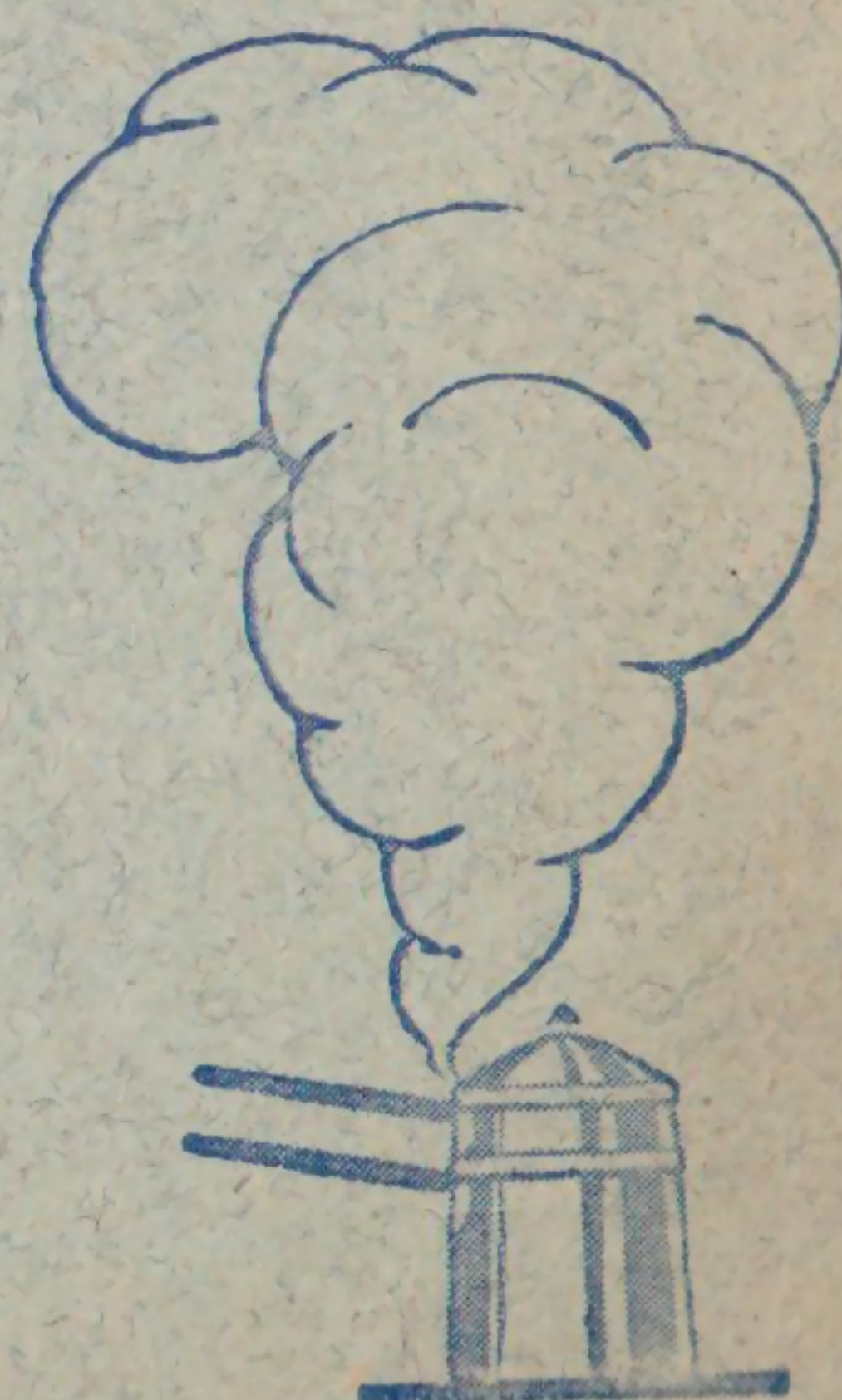
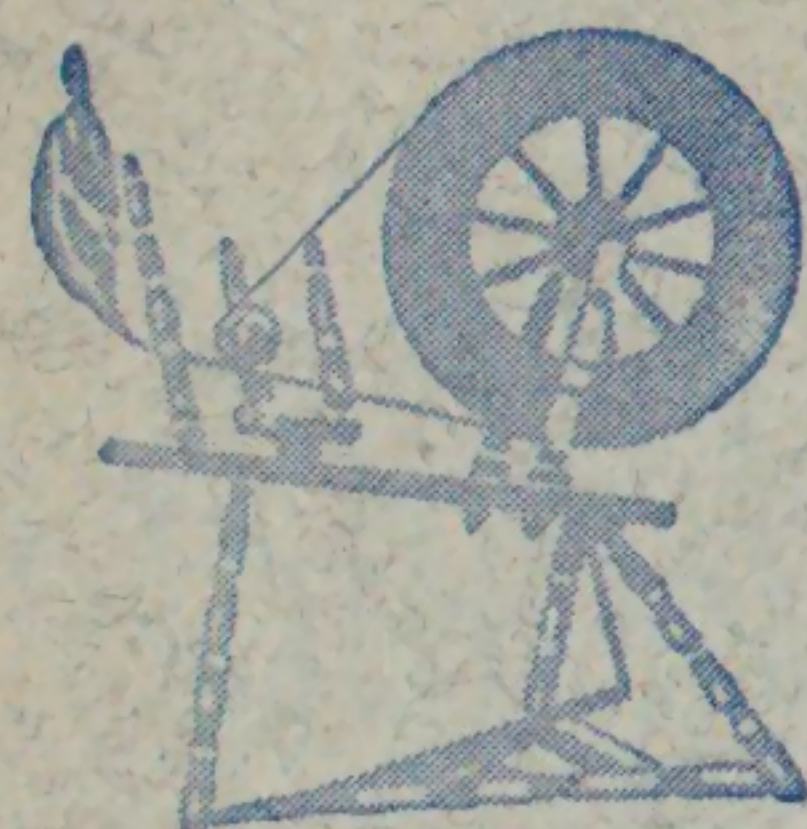
PART 1

By ORA CNE

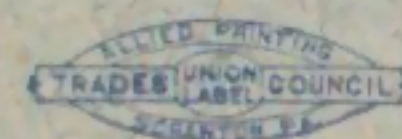
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OF DOMESTIC ARTS AND SCIENCES, Inc.
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77041



ADVICE TO THE STUDENT

Study a few pages at a time and in consecutive order. Pay particular attention to the definitions; a correct understanding of them is essential. If you do not understand any of the statements or if you meet with difficulties of any kind, write to us for assistance. It is our desire to aid you in every way possible.

After you have studied the entire Section, review the whole subject, then write your answers to the Examination Questions at the end of this Paper. All that is necessary is to give the answers and write in front of each the number of the question to which it refers.

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SOLID FOUNDATIONS

(PART 1)

BUCKRAM FRAMES

MATERIALS AND TOOLS USED

KINDS OF MATERIALS

1. In a skeleton foundation there are large openings between the wires, but the wires are spaced closely enough to produce the desired shape when they are properly covered. A solid foundation has no such openings, for the reason that it is made of buckram, or some similar material, that is cut, bent, and sewed to produce the desired shape of frame. Solid foundations may be either one-piece or two-piece; however, the one-piece kind is machine made, inasmuch as it requires heavy pressure between heated dies to bring it to shape. Hand-made solid foundations are of the two-piece kind, the crown and the brim being made independently of each other. This Section will deal mainly with the construction of hand-made crowns of buckram and similar materials. However, it is possible to combine various shapes of hand-made crowns with factory-made brims, or factory-made crowns with hand-made brims, and in this manner produce a great variety of shapes.

2. The material most commonly used in the construction of hand-made solid crowns and brims is buckram. This is a coarse material woven from rough, loosely twisted cotton threads. After it has been woven it is starched and stiffened. The coarseness of the material varies, as may be seen by reference to Figs. 1 and 2, which show single thicknesses of buckram of different weaves.

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Usually, buckram is two-ply, made by pasting together two thicknesses. For example, buckram like that shown in Fig. 1 would be

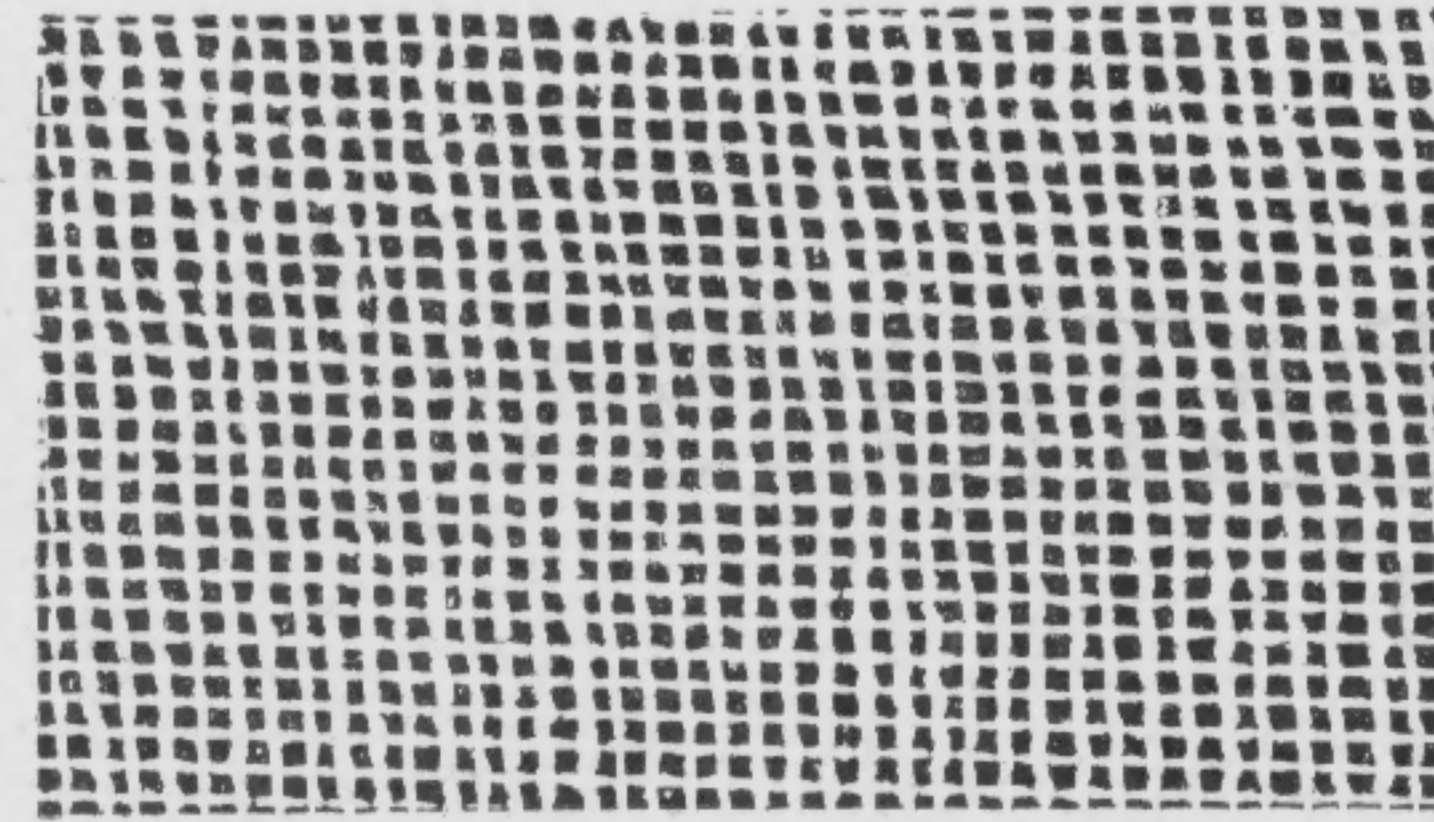


FIG. 1

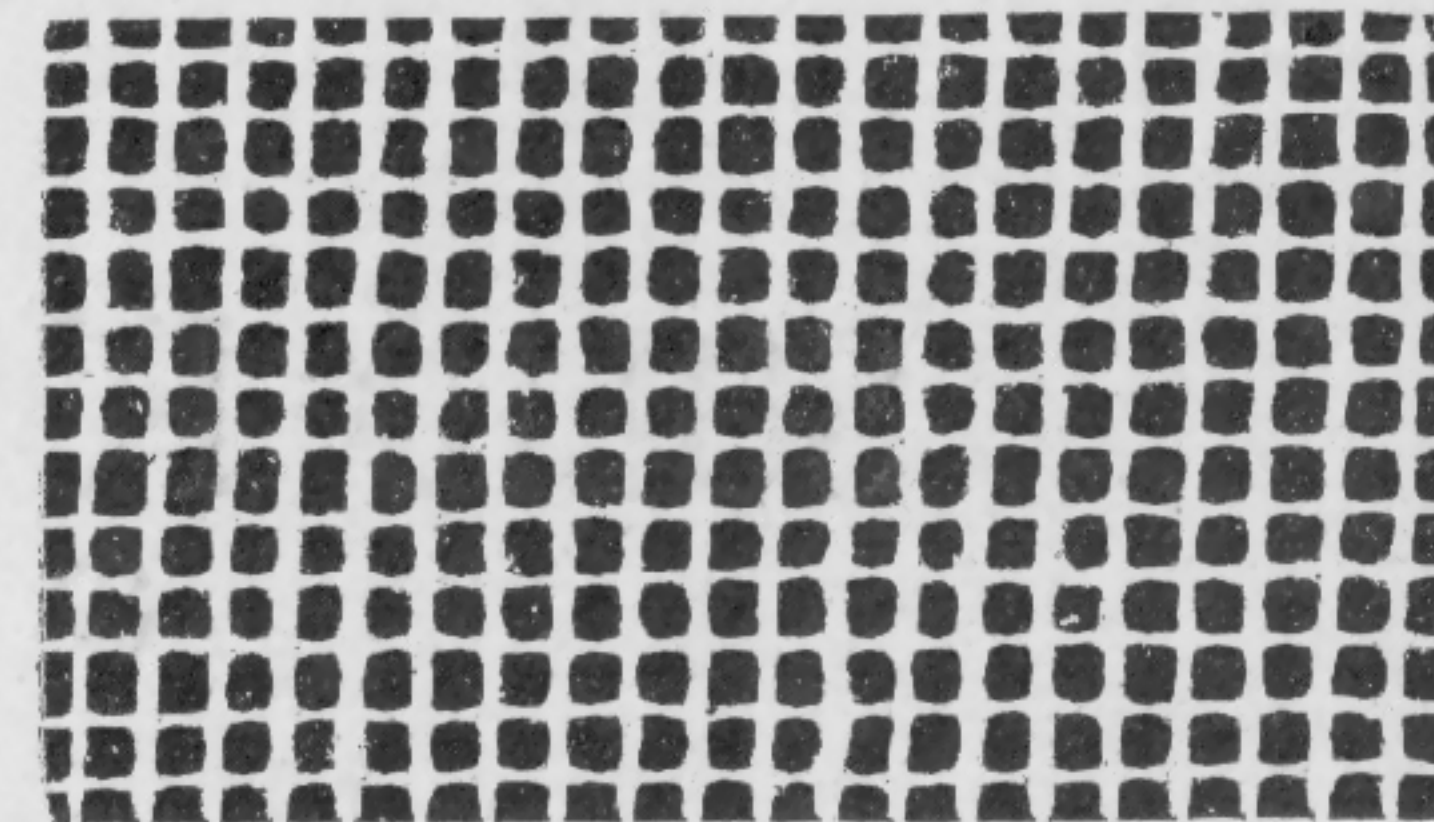


FIG. 2

joined to the kind shown in Fig. 2 to form two-ply buckram, the coarser weave forming the wrong side and the finer weave the right side of the material. The appearance of a piece of two-ply buckram, seen from the coarse side, or wrong side, is illustrated in Fig. 3.

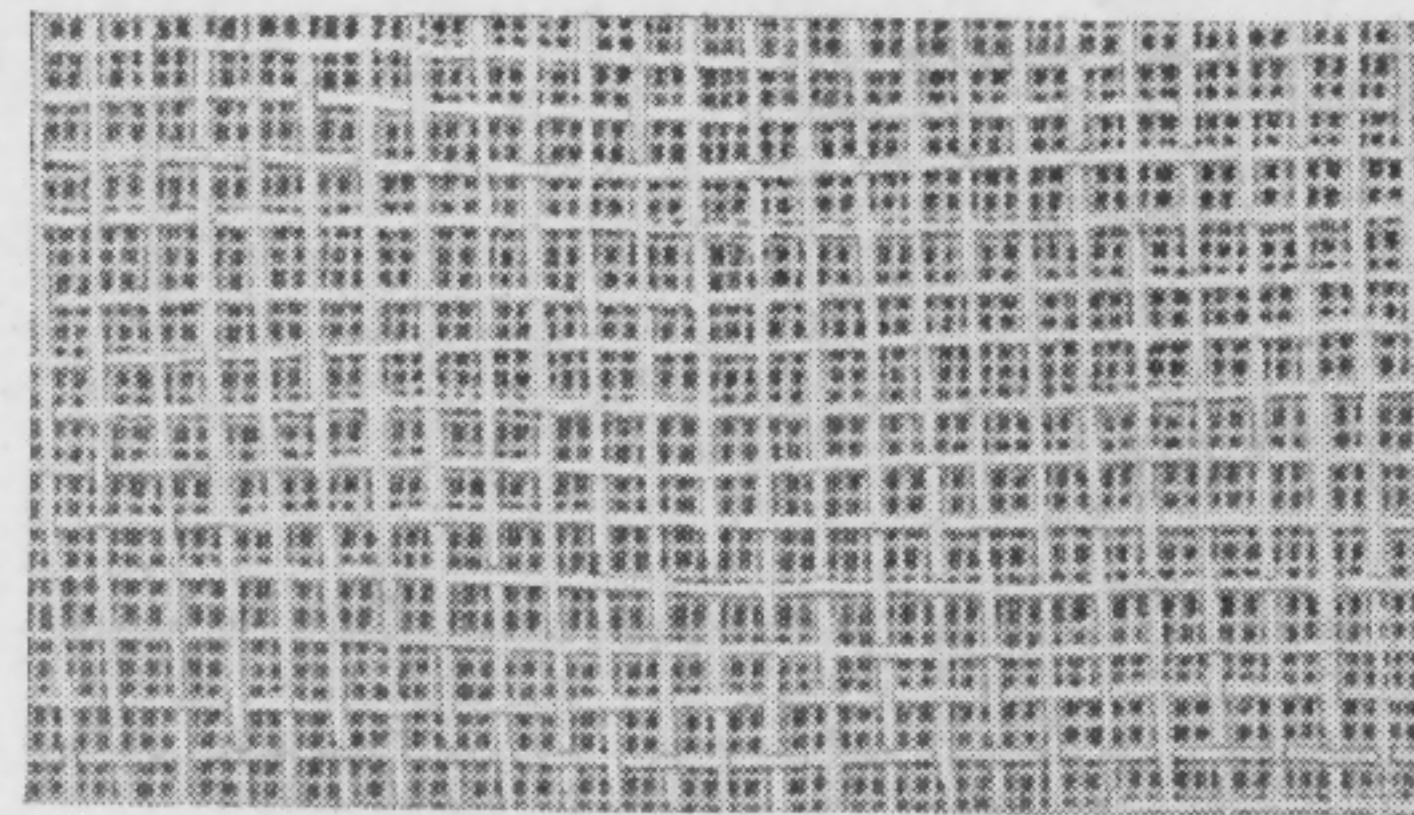


FIG. 3

Three-ply buckram is made by adding a third thickness to the coarser side of two-ply stock. The third ply thus added is even coarser than that shown in Fig. 2. Its purpose is to add to the strength and stiffness of the material without adding greatly to its weight. Four-ply buckram can be obtained, also, but the two-ply

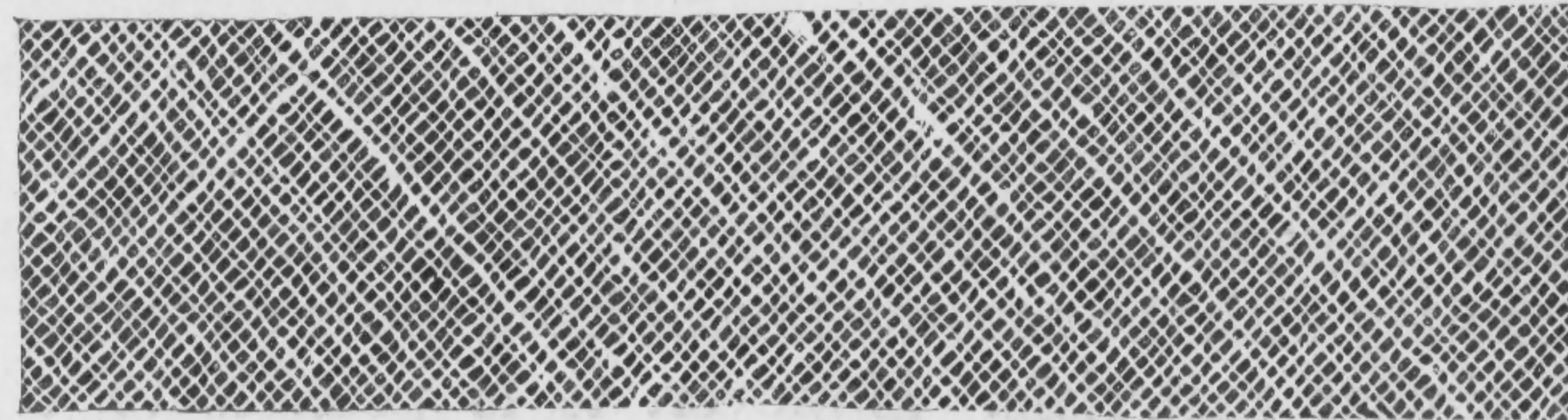


FIG. 4

kind is ordinarily used in the construction of solid frames. The four-ply variety is used to make shapers, or forms, over which wire

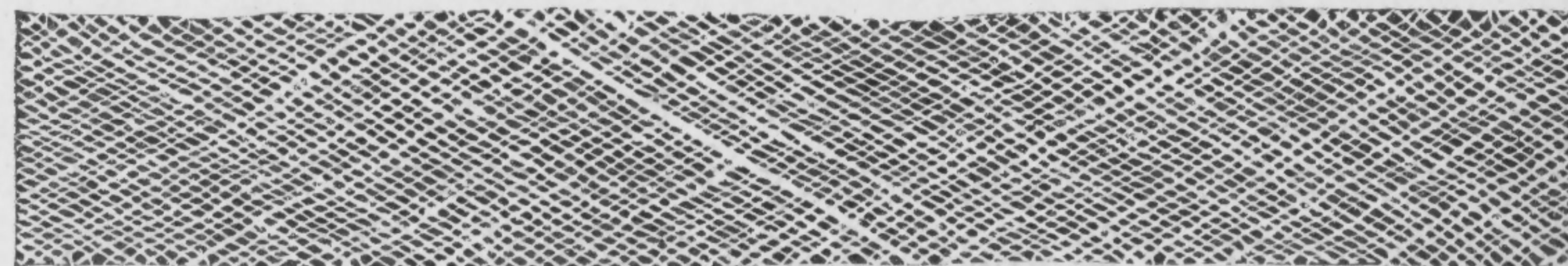


FIG. 5

frames can be constructed. Buckram is made in both solid black and white, and comes in rolls 40 in. in width.

3. The material illustrated in Fig. 4 is known as crinoline. It is a fine, open-mesh, single-ply muslin treated with some kind of sizing that gives it a certain amount of stiffness. It is not so heavy nor so

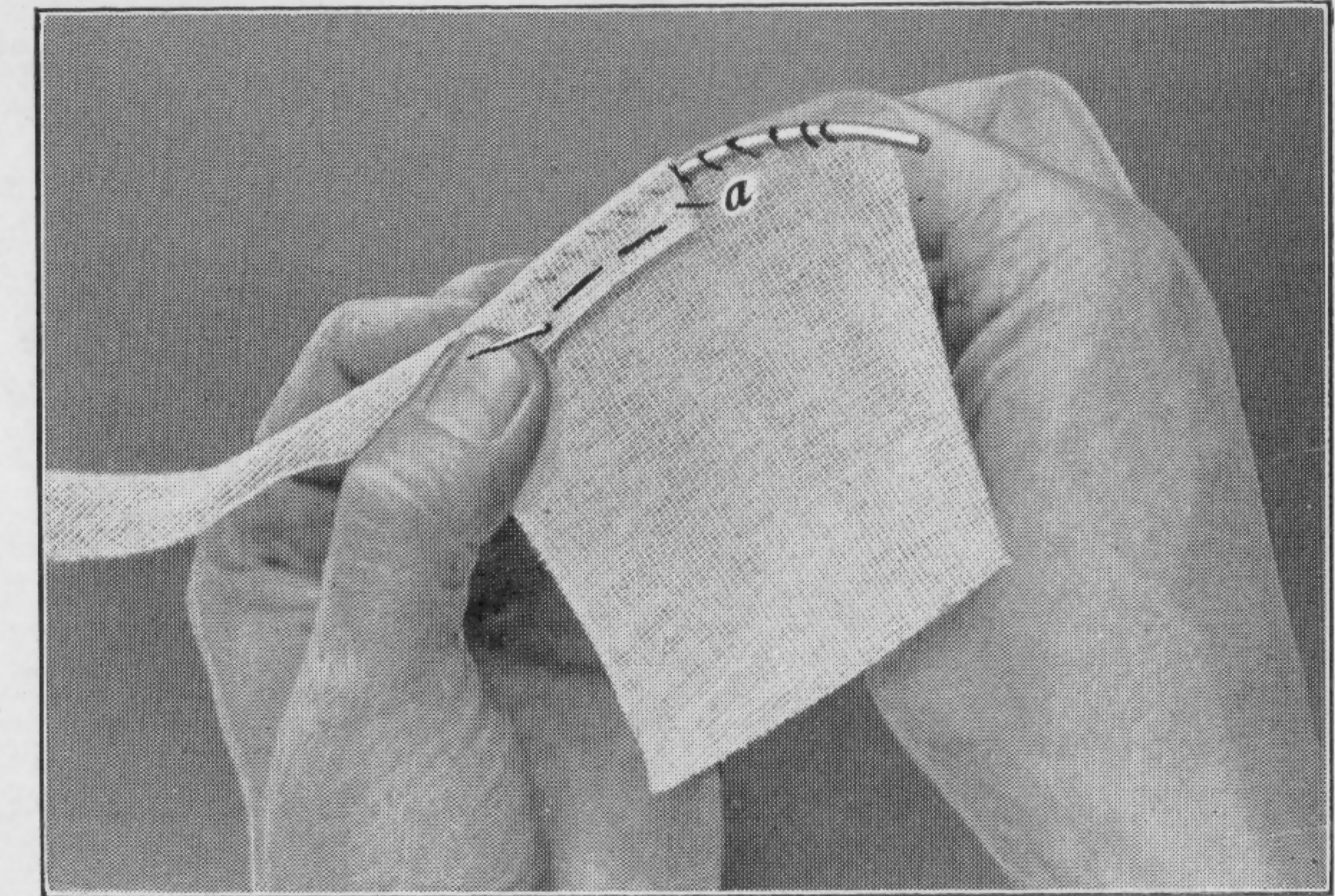


FIG. 6

firm as single-ply buckram. If cut on the bias, that is, at an angle with the threads instead of parallel to them, it can be stretched readily. For example, if a piece of crinoline is cut as shown in Fig. 4 and the ends are then pulled outwards, the strip will take the shape shown in Fig. 5. This peculiarity of the material makes it

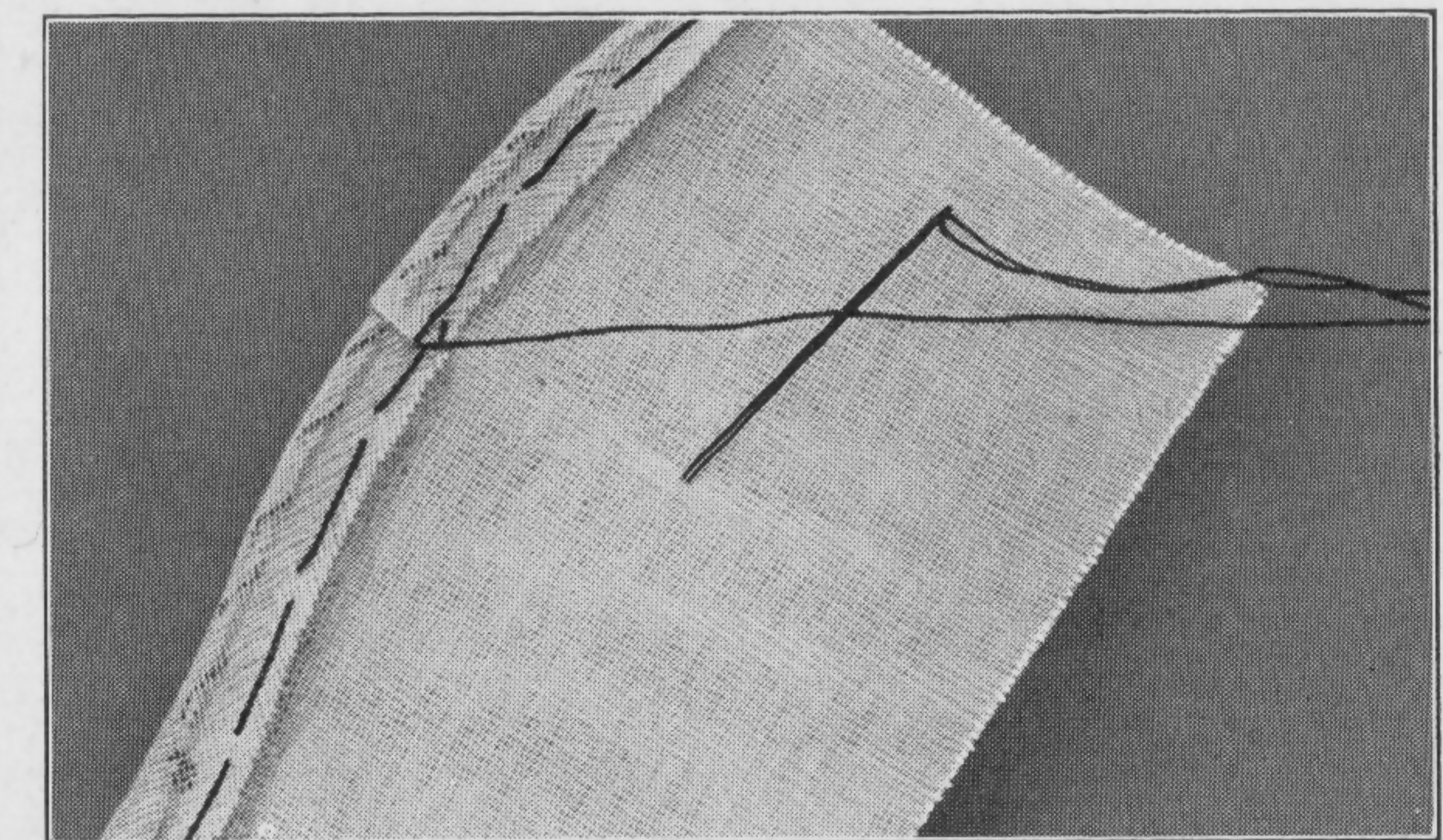


FIG. 7

useful as a binding for the edges of hats. It is sometimes used instead of mull for covering wire frames.

4. The method of starting to attach a binding of crinoline to the edge of a wire-bound brim is shown in Fig. 6. The bias strip of crinoline is cut squarely across the end, as shown at *a*. The strip is folded over the edge, so that half of it lies on each side of

the brim, and the halves are then sewed to the brim by a series of basting-stitches. A binding of this kind is always put on over the edge wire of a brim to produce a smooth finish before the frame is covered with velvet, silk, satin, or other material. When the binding has been sewed fast all around, and the stitching has

reached the starting point, the end is cut off squarely, overlapping slightly the end first sewed fast, and is then sewed down. This is shown clearly in Fig. 7. The end of a crinoline binding is never turned under before being sewed down.

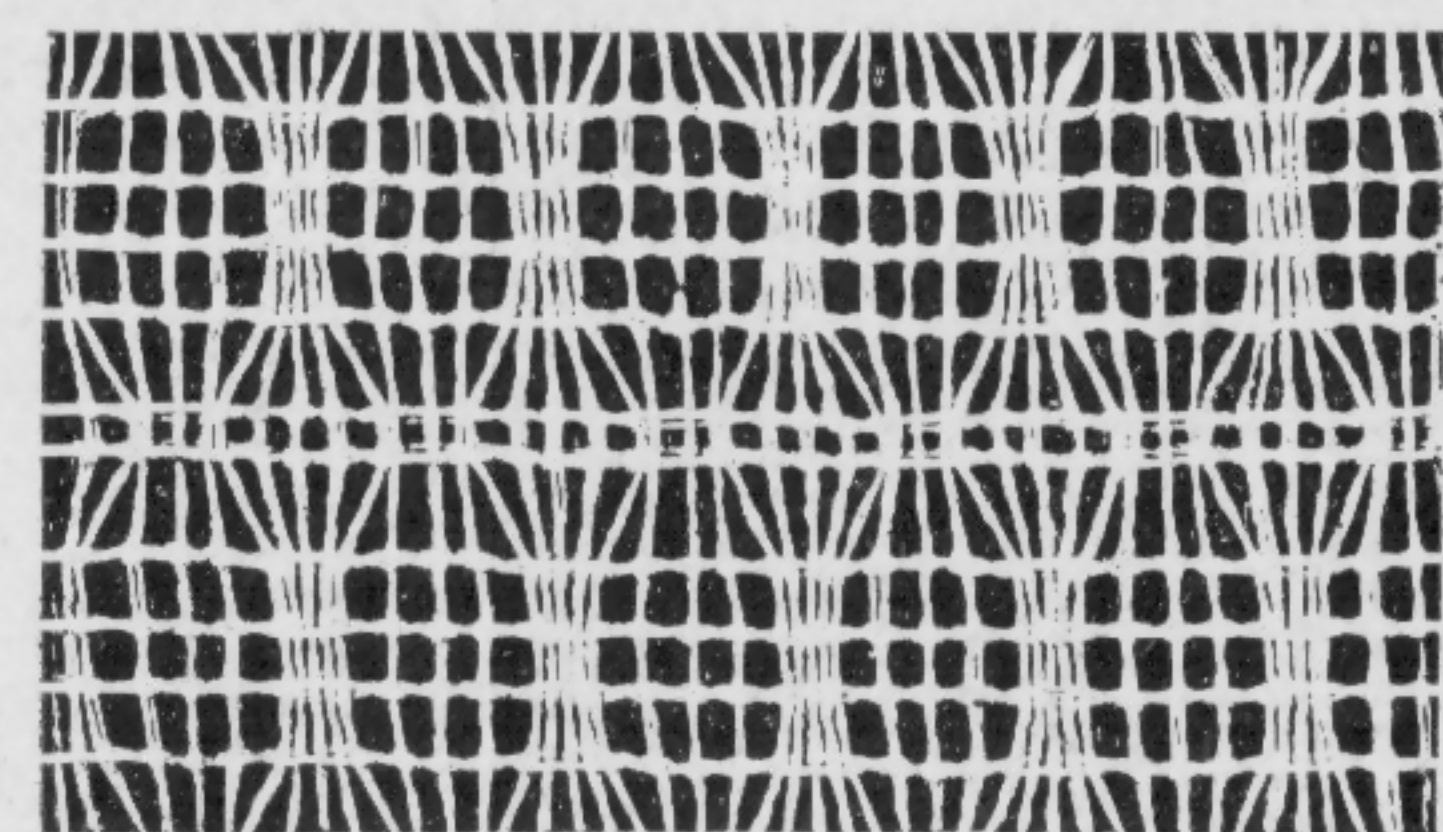


FIG. 8

5. **Elastic cloth**, one kind of which is illustrated in Fig. 8, resembles single-ply buckram of coarse weave and possesses about the same weight and stiffness. Unlike buckram, however, it can be stretched when cut on the bias, in the same manner as a piece of crinoline. On this account it can be made to fit a rolled brim easily, and it is therefore used for making rolls on the edges of brims, such as turbans, etc.

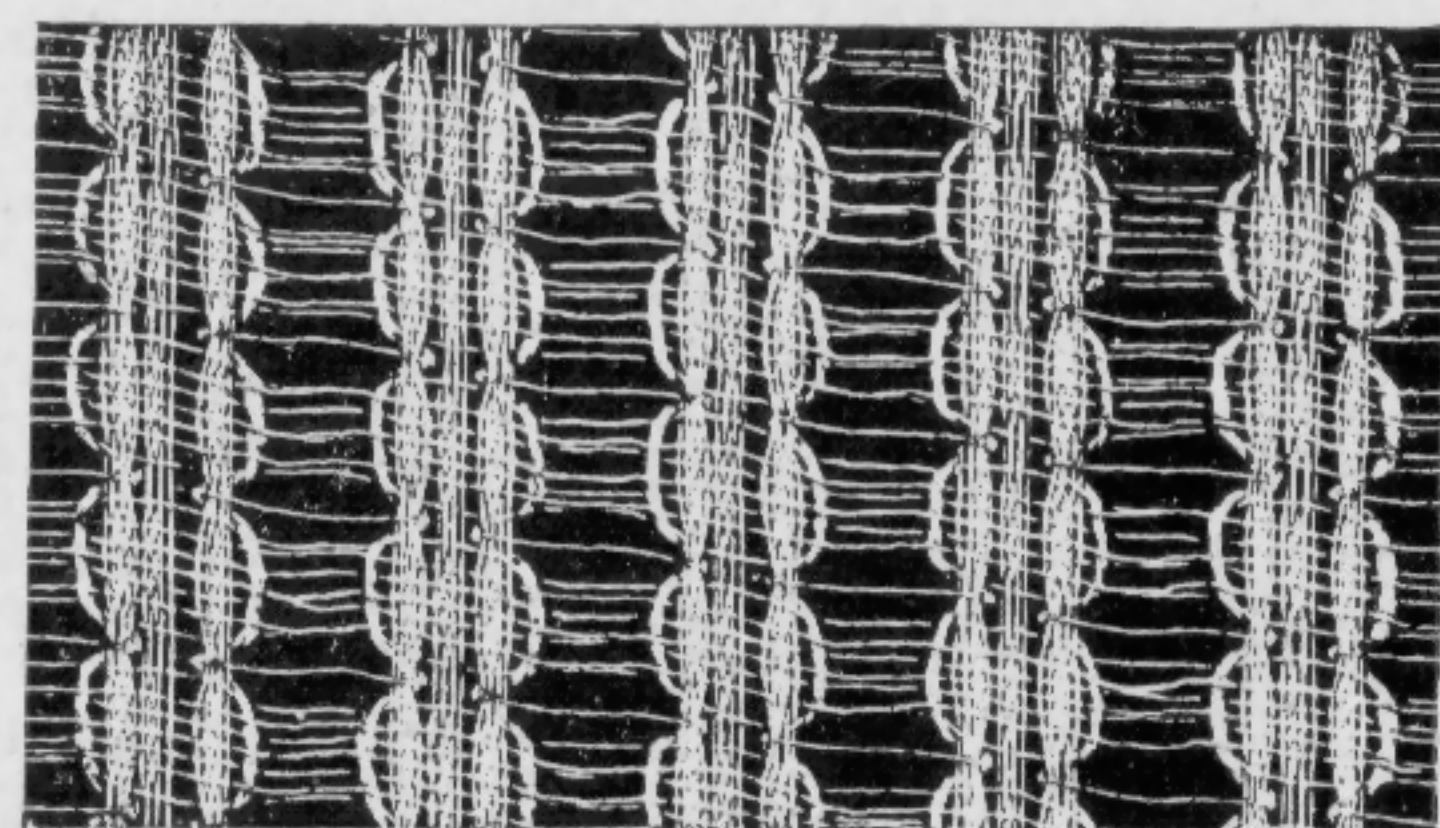


FIG. 9

If a hat is to be covered entirely with lace, and it is not advisable to use a wire frame, the light material illustrated in Fig. 9 may be used to make a solid foundation to which the lace covering can be sewed. This material is known as **lacette**, and because of its design it forms a very inconspicuous foundation for lace. **Panama cloth**, illustrated in Fig. 10, is a closely woven

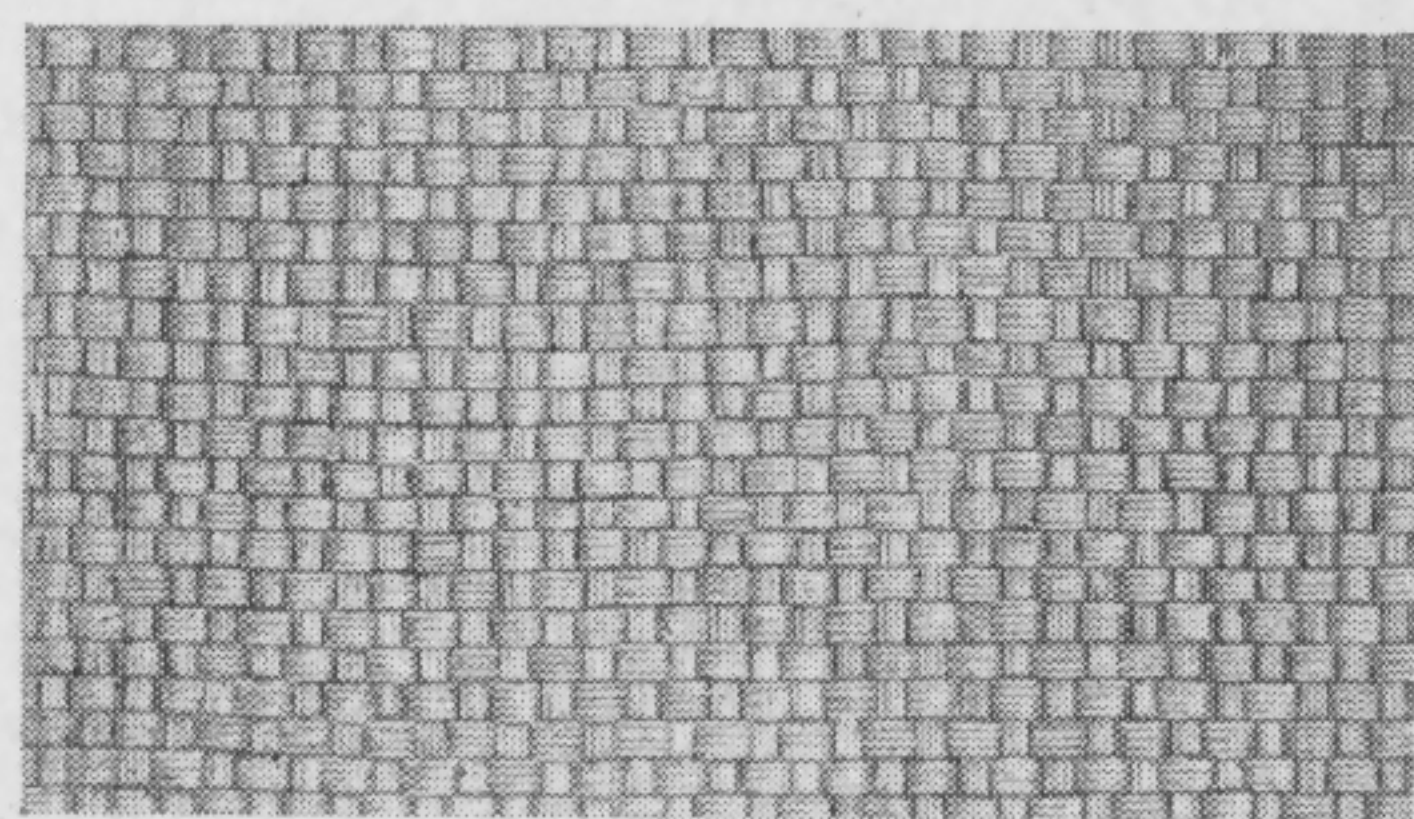


FIG. 10

muslin finer than buckram but not so stiff; therefore, when used as a foundation material, it must be well supported by brace wires.

TOOLS AND THEIR USE

6. **Shears.**—Shears are employed extensively in making solid foundations, because they are required for cutting the buckram and other materials. The size commonly used is $7\frac{1}{2}$ in. long, or the same

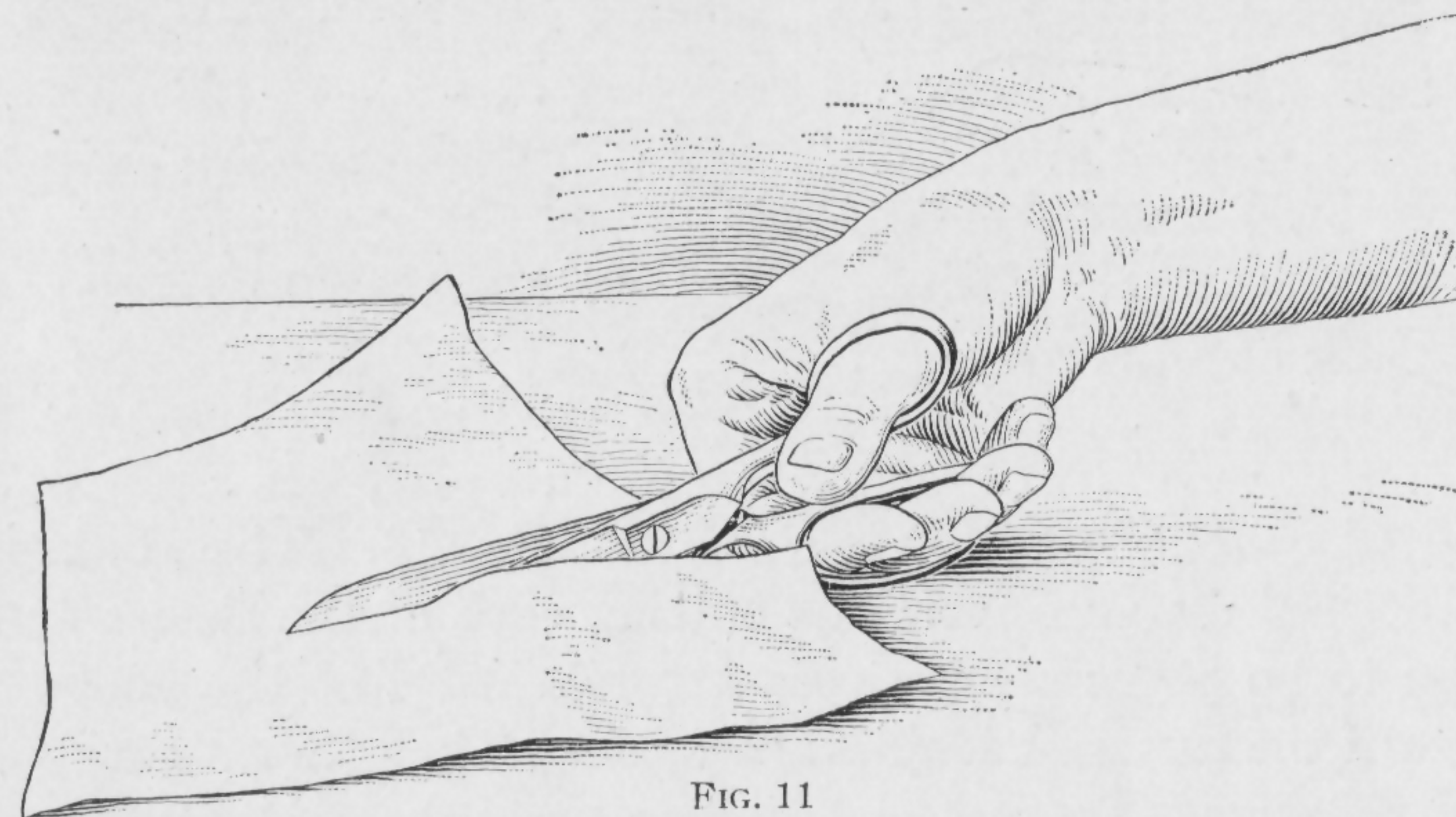


FIG. 11

size as is used for cutting tie wires in the construction of wire frames; and as before, the shears may be right-hand or left-hand, to suit the person using them. Buckram and the other materials used in making solid foundations are stiff and strong, and are harder to cut than softer, thinner materials. For this reason, it may be found difficult to follow a line marked out on buckram if the shears are not properly held. The correct method of holding shears while cutting buckram is shown in Fig. 11.

The blades should stand straight up and down, and not incline to either side. In this position the line can easily be seen and there will be no tendency to run to either side while cutting.

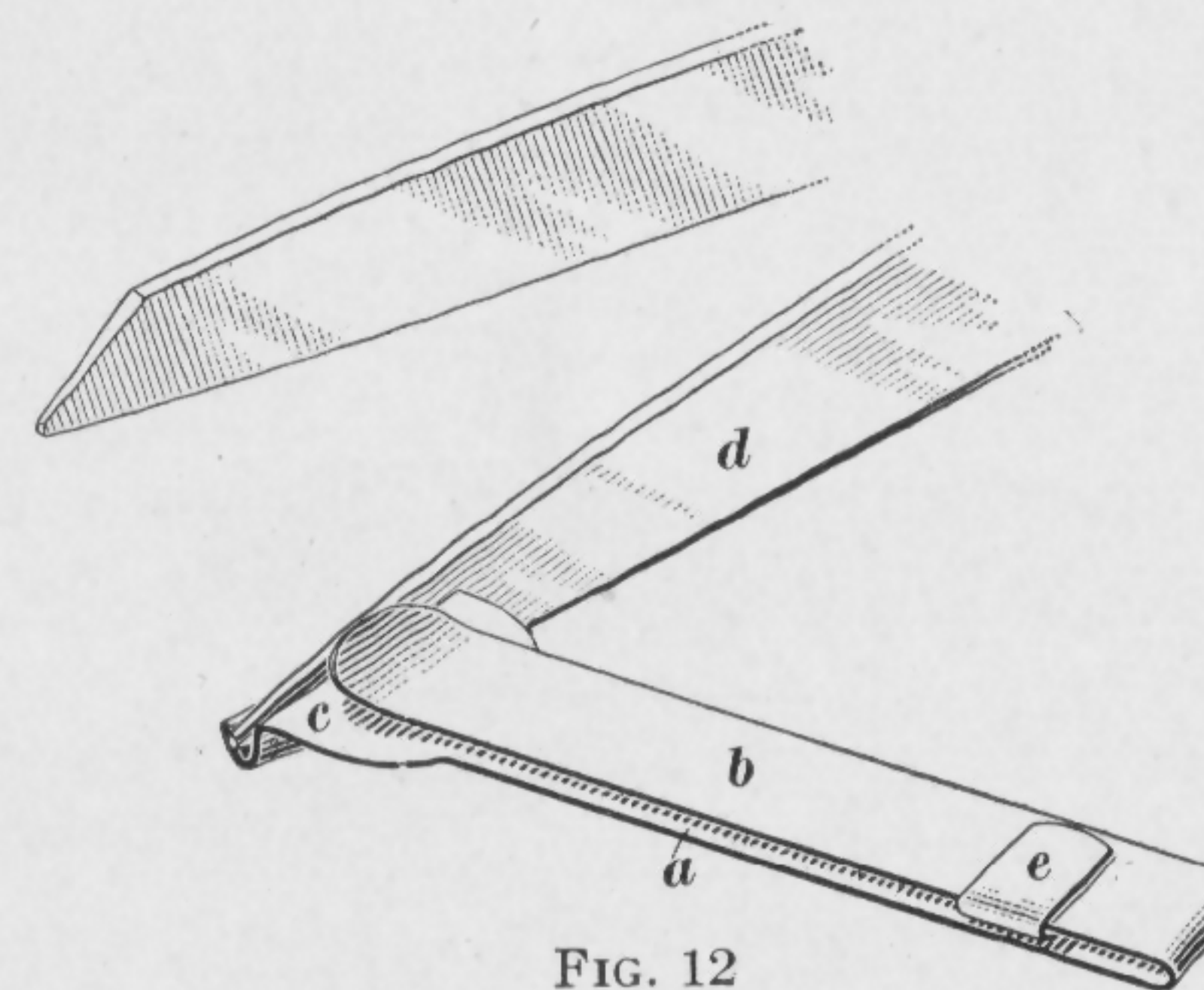


FIG. 12

7. **Cutting Gauge.**—When a piece of material of uniform width, such as a band, is to be cut, the cutting gauge shown in Fig. 12 will be found useful. It is made of a thin strip of metal doubled over at a point near the middle so that the two parts *a* and *b* lie parallel and close together. The end of the part *a* is bent to form a clip *c* that can be slipped over the lower blade *d* of the shears. On

the upper part *b* is a movable guide *e* that can be set at any desired distance from the cutting edge of the blade *d*. The distance from the edge of the blade *d* to the nearer edge of the guide *e* determines the width of the band that will be cut when the gauge is used. The

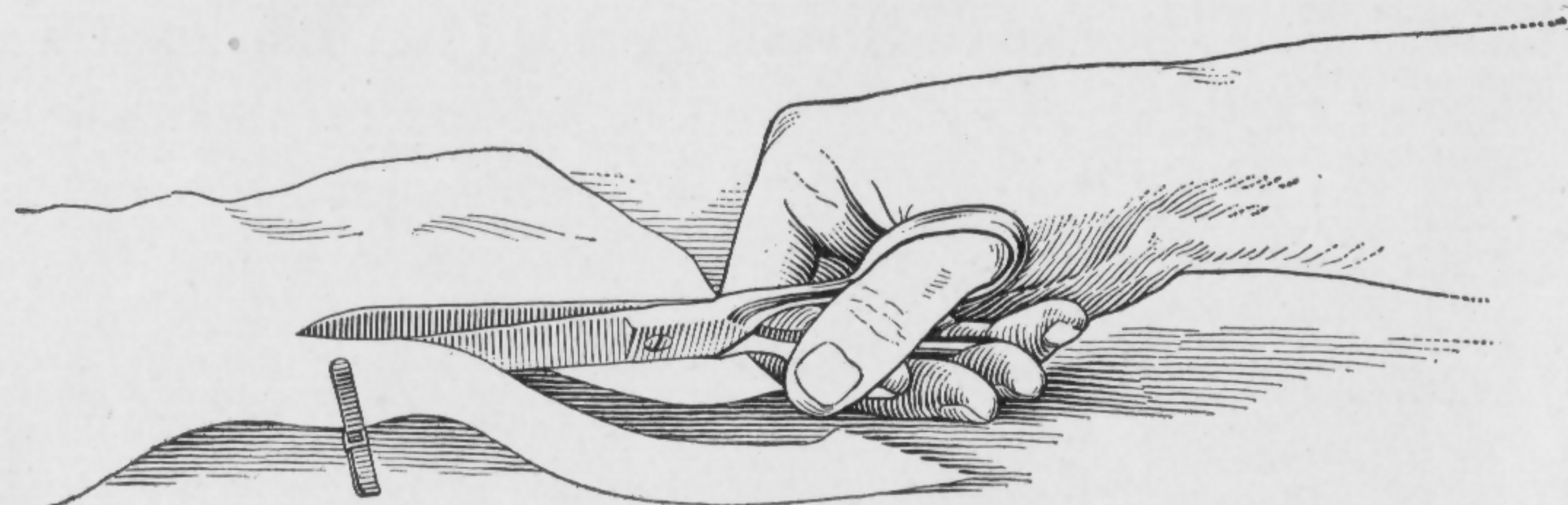


FIG. 13

method of using the gauge is shown in Fig. 13. The guide is set at the desired distance from the cutting edge of the shears and the material to be cut is set between the two parts of the gauge, with the edge of the material against the guide. Then the cutting is done, keeping the edge of the material firmly against the guide on the gauge, without wrinkling the goods. The result is a strip of material of uniform width. The gauge can be used to cut strips not over $1\frac{1}{2}$ in. wide.

8. The cutting gauge shown in Fig. 12 is by no means indispensable when a band of uniform width is to be cut. There are various ways in which the same result can be attained without the use

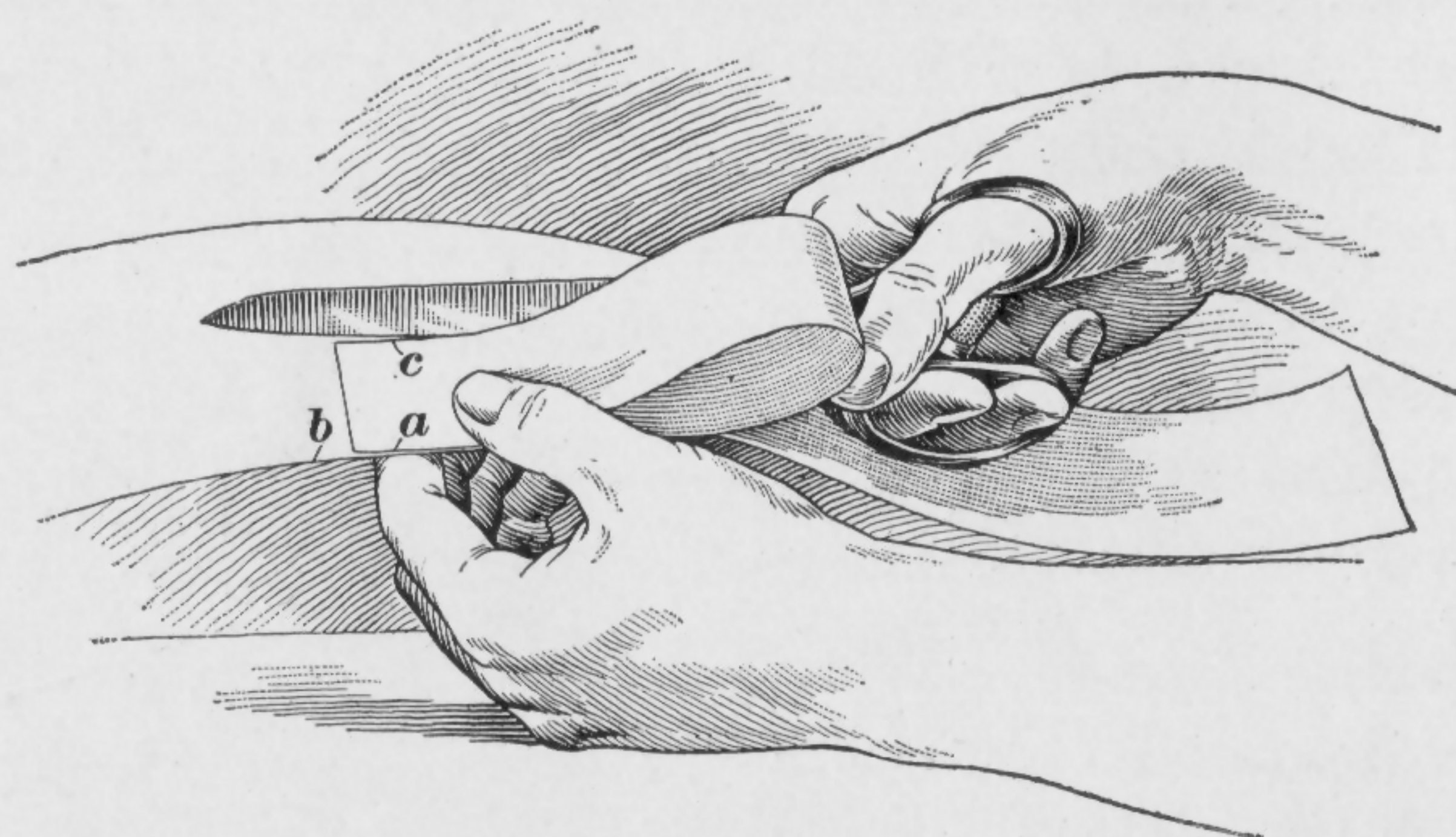


FIG. 14

of any form of attachment. If the material is stiff, such as buckram, crinoline, and the like, the width of the strip to be cut may be marked by a line or by a series of marks laid off with a paper gauge, and the cut can be made along the line or the marks. If the

material is soft, however, it is not possible to mark out the line of the cut in this way. In such a case, the method illustrated in Fig. 14 may be followed. Take a tape measure, measure off the width of the strip at the edge where the cut is to begin and cut into the material for a couple of inches. Now fold the end of the strip over, as shown, with its edge *a* even with the edge *b* of the material, and cut along the edge *c* of the strip. As the cutting proceeds, move the end of the strip along, using it as a gauge, and always keeping the edges *a* and *b* in line. The result will be a strip of uniform width throughout.

9. In addition to the special tools that have just been described, the construction of solid crowns involves the use of many other devices that have already been mentioned. For example, paper gauges cut to desired lengths are used for marking off distances. Brace wire of the size known as No. 21 is used to stiffen and support the edges of crowns. Pins are used to hold the folds or pieces of buckram in their correct positions until they can be sewed permanently in place. Needles and thread and the thimble are brought into extensive use in the making of solid foundations, because of the large amount of sewing that must be done; also, this sewing involves the application of a number of the forms of stitches that were illustrated and described in one of the foregoing Sections.

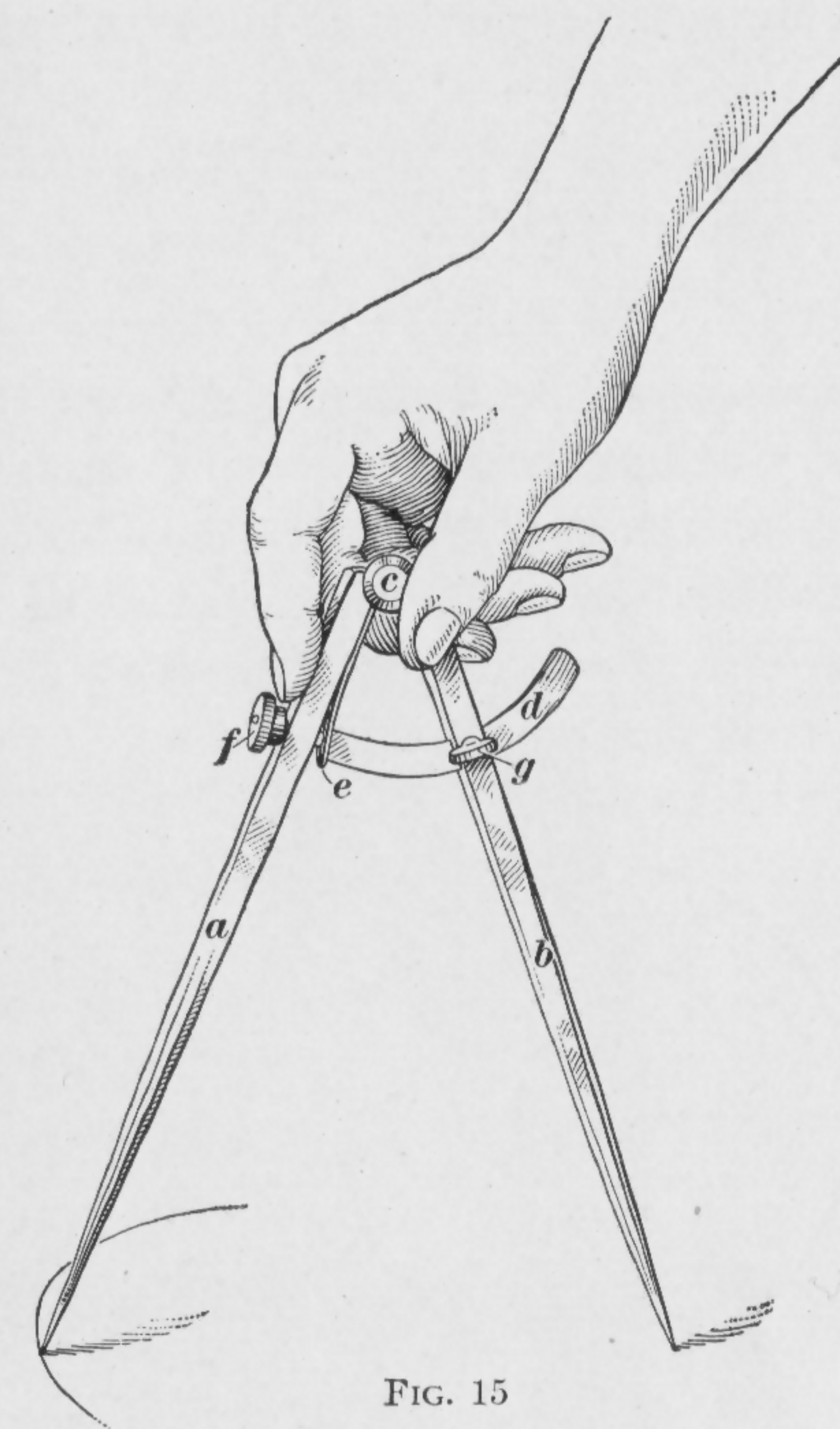


FIG. 15

10. **Compasses.**—In the construction of crowns and brims of buckram, it frequently is necessary to mark out circles of various sizes on the material. This operation is easily accomplished by the use of a pair of compasses such as are shown in Fig. 15. They consist of a pair of legs *a* and *b* jointed together at the point *c* in such a way that they can be swung apart. Each of the legs is 8 in.

long and is pointed, as shown. To the leg *a* is attached a flat curved piece *d*, the shank of which passes through a hole in the spring *e* and through a corresponding hole in the leg. It is threaded and is held in place by the nut *f*. The free end of the flat curved piece *d* passes through a slot in the leg *b*. At one side of the leg, just where the slot is cut, is a thumbscrew *g*. When this screw is tightened, the flat piece *d* is clamped tightly in the slot and the legs are held so that they cannot spread. To use the compasses, the joint at *c* is grasped in the manner shown in the illustration and the leg *a* is swung around the leg *b*, whose point is stationary, except for the turning motion as the compasses are twisted around. The point of the leg *a* then marks out a circle.

11. The size of the circle marked out by the compasses in Fig. 15 depends on the distance between the points of the legs; the greater the distance between these points, the larger will be the circle. In any circle the total distance across, from one side to the other, measured through the center, is called the *diameter* of the circle. A circle is shown in Fig. 16, with its center at *a*. The distance from *b* to *c*, in a straight line passing through the center *a*, is the diameter of the circle. As the center of the circle is at the middle of the

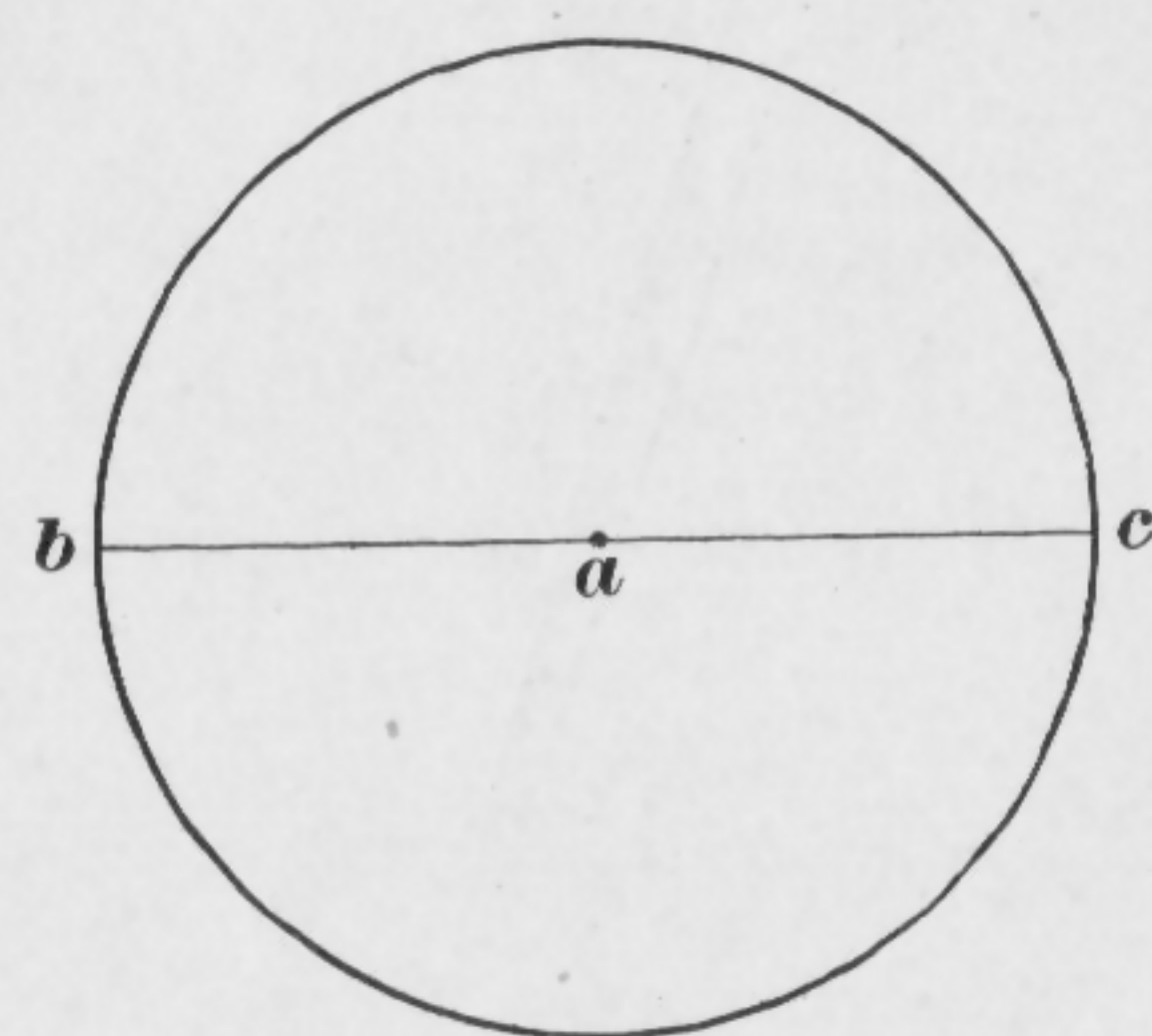


FIG. 16

diameter, it follows that the distances *a b* and *a c* are equal, each being half of the diameter. The distance from the center of a circle to the curved line is called the *radius*; therefore, the radius of the circle shown is *a b*, which is equal to *a c*, and so the radius is just half of the diameter. When the compasses are set to draw a circle, the points are adjusted so that the distance between them is equal to the radius, or half the diameter, of the required circle. To adjust the compasses, loosen the screw *g*, Fig. 15, move the legs together or away from each other until the points are about the required distance apart, and tighten the screw. Then by turning the nut *f*, the points can be brought exactly to the desired distance.

12. Compasses are used extensively by designers of frames and creators of models in factories, for marking out circles, because of the large amount of such work they are called upon to do. The beginner is not required to use compasses for this class of work; for, as will be explained later, paper patterns may easily be folded

and cut to give sufficiently accurate outlines for circles of various sizes. However, there is no reason why the beginner should not learn to use the compasses as easily and accurately as the experienced designer. In marking circles on very coarse buckram, it may be found convenient to use a pencil point on the compasses. This attachment consists of a clip that is slipped over one leg of the compasses and that carries a holder for a lead pencil. The leg to which the pencil is attached is swung about the other one, and the point of the pencil draws a circle on the material.

BUCKRAM CROWNS

CROWNS MADE BY MACHINE

13. **Pressed Crowns.**—A machine-made dome crown constructed of buckram is shown in Fig. 17. In its manufacture, a square of buckram of sufficient size is cut and dampened so that it

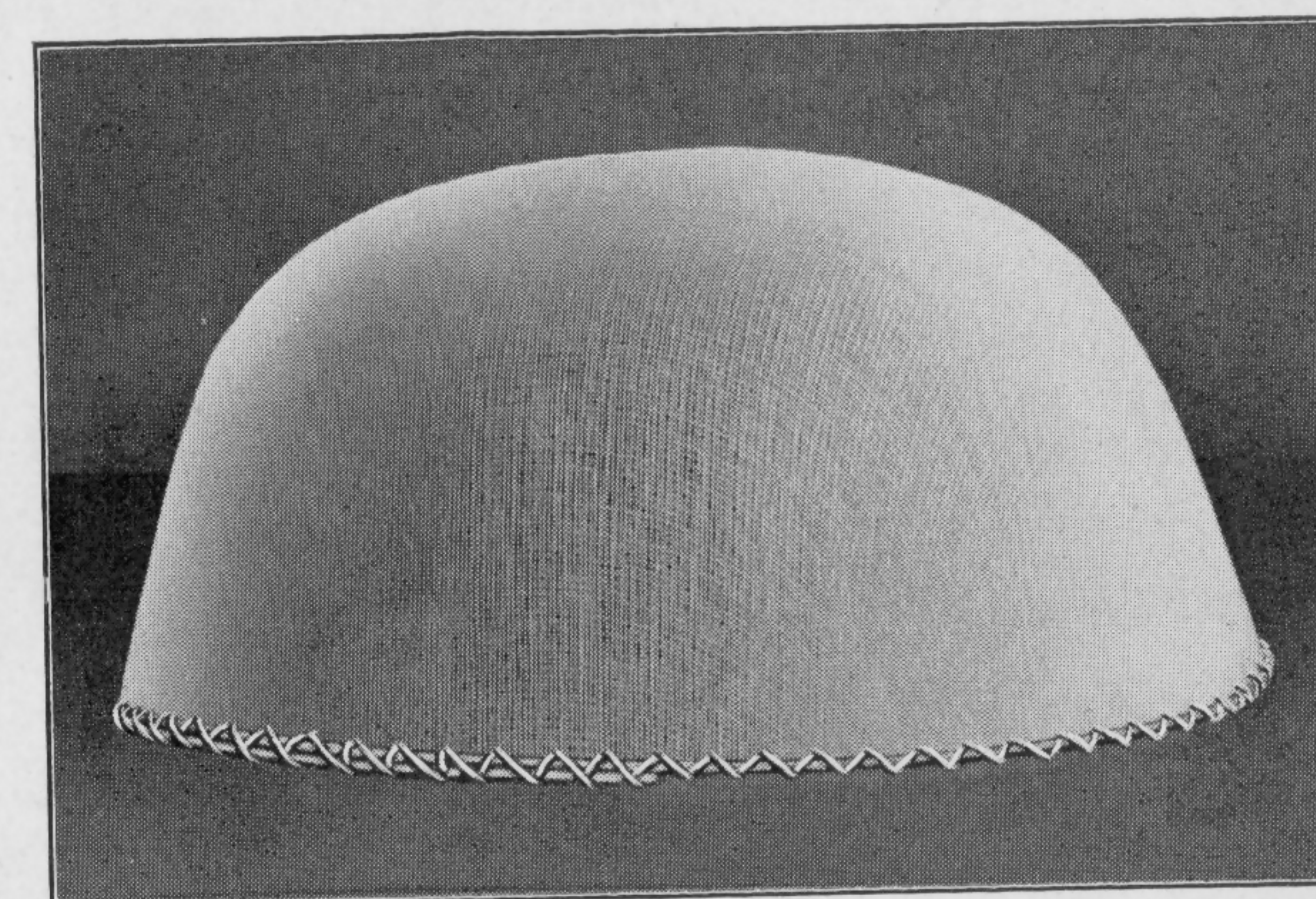


FIG. 17

will stretch readily. This is laid over a gas-heated die that has the shape of the inside of the crown and the corners are pulled down so as to stretch the buckram over the die. Then a second gas-heated die of the same outline, but hollow, is forced down over the buckram, thus clamping it and pressing it between the two heated metal surfaces. It is held there until it is practically dry, after which the dies are

separated, the shaped buckram is removed, and the irregular edge is trimmed off. A brace wire is then sewed to the crown, as shown.

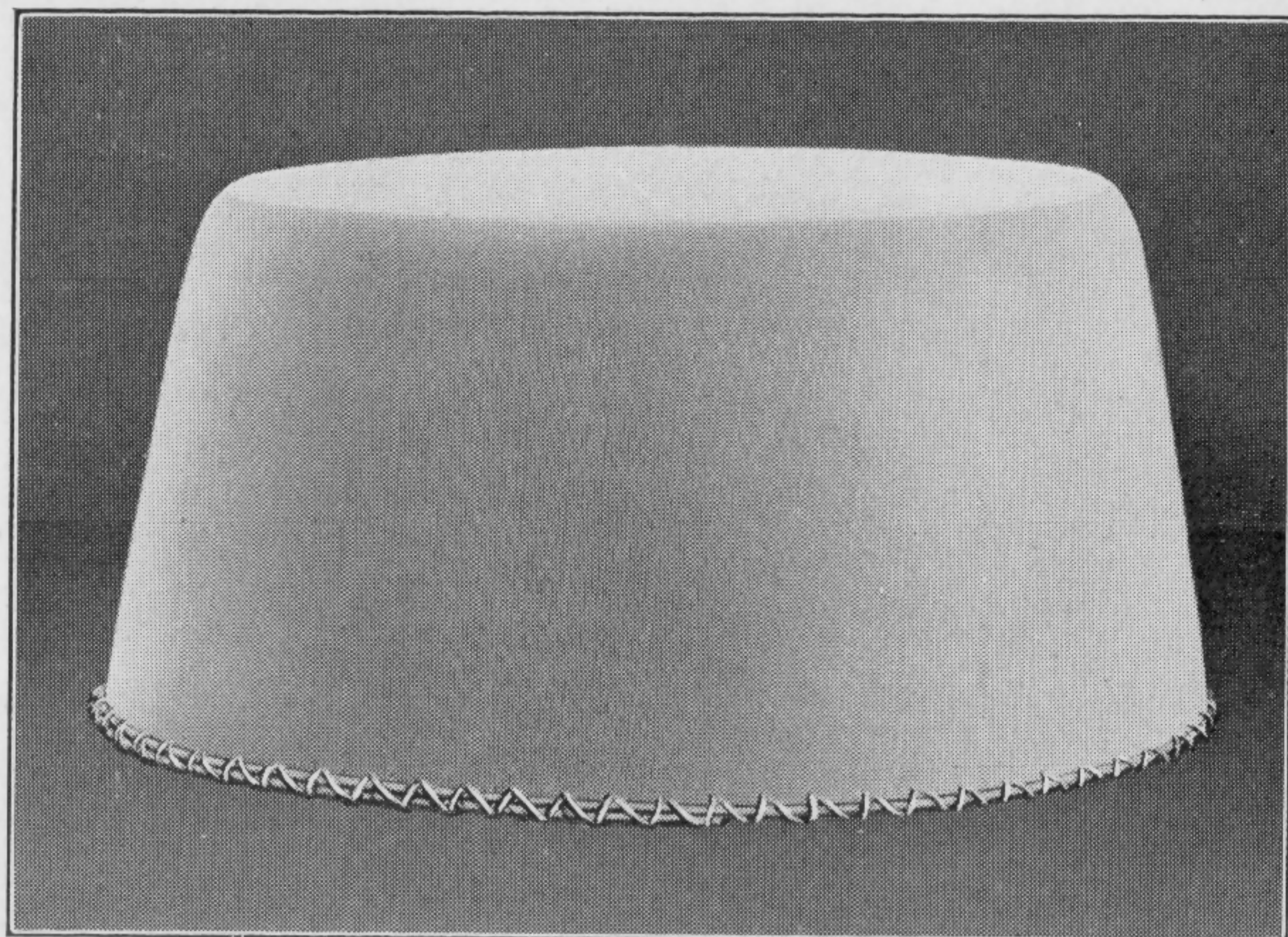


FIG. 18

This is done by machine, also. The wire is fed through a hole in the presser foot and the needle passes through the buckram alter-

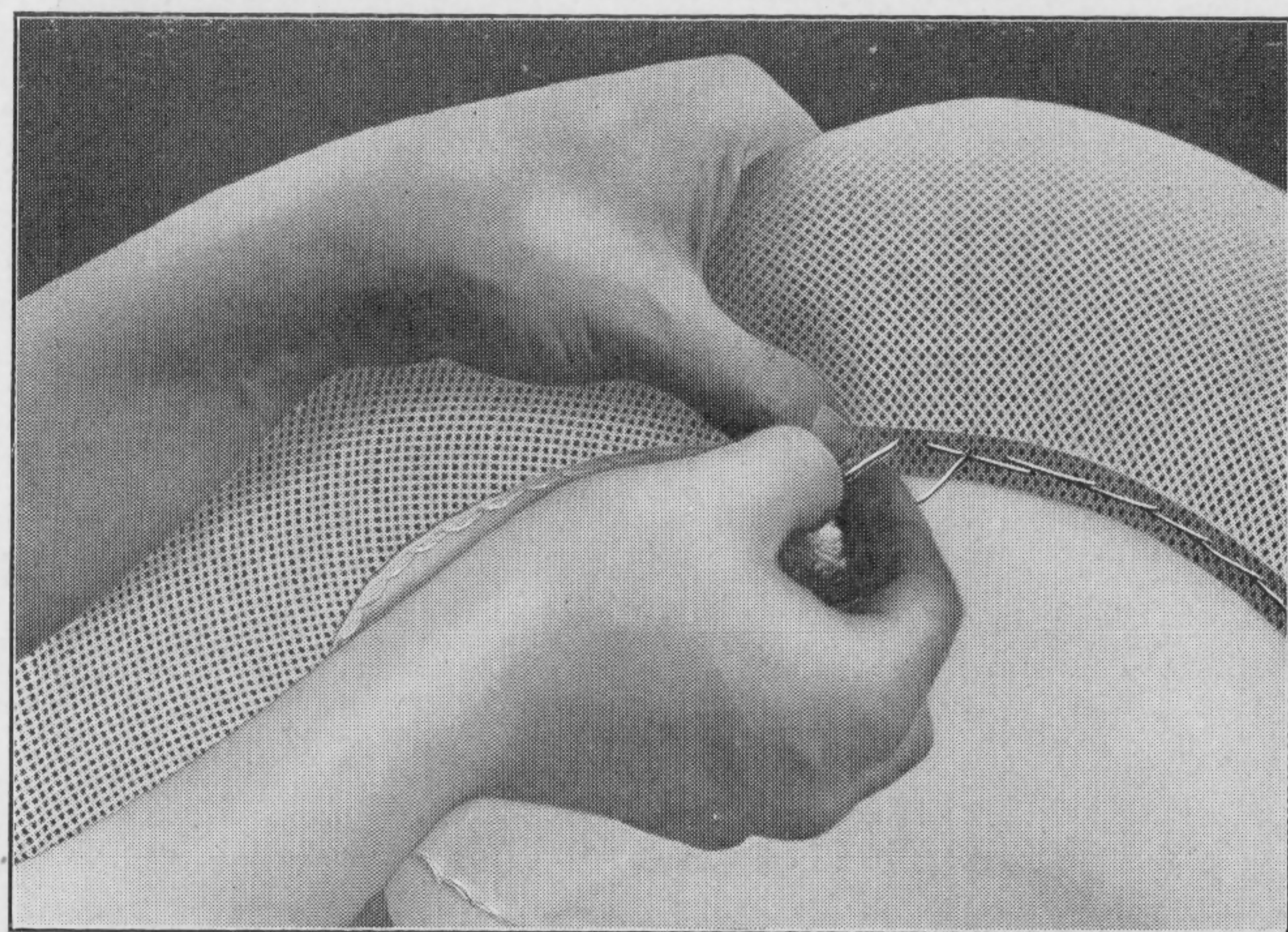


FIG. 19

nately on opposite sides of the wire, making a zigzag chain-stitch that holds the wire in place. The box-shaped crown in Fig. 18 is made

in the same manner, but the shape of the dies is different. Because of the pressure and heat required to form such shapes in buckram, it is not possible to make crowns like these by hand. When making a crown by hand, the buckram is cut in such a way that, when it is bent or folded, it will have the desired shape as nearly as can be obtained.

14. The pressed crown, because of the fact that it can be purchased cheaply, may be made the beginning of a solid foundation and a brim of the desired shape may be added to it by hand. To illustrate, suppose that a rolled brim of uniform width is to be fastened to the box crown shown in Fig. 18. From a piece of elastic cloth of

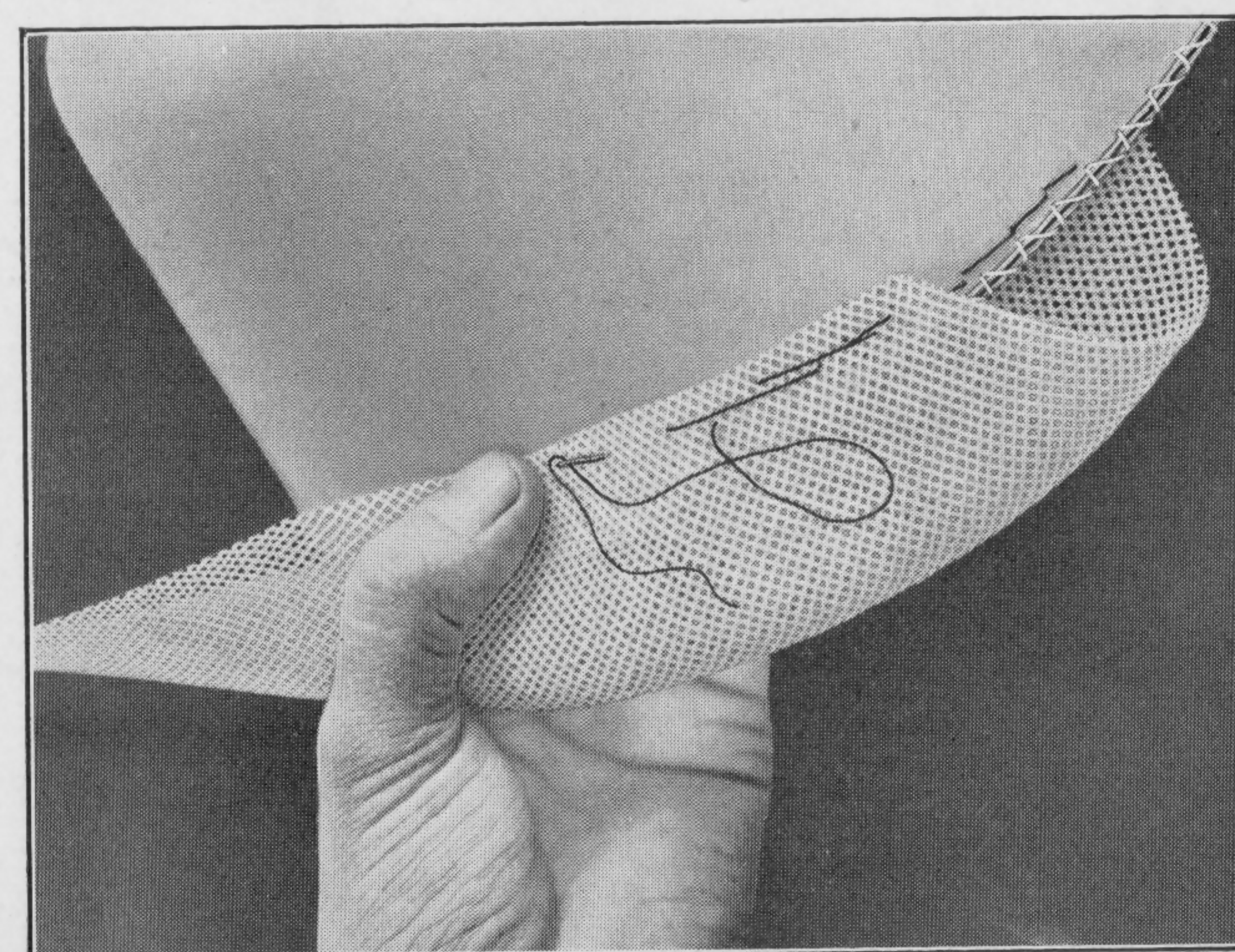


FIG. 20

the same color as the crown, cut on the bias a strip 6 in. wide and long enough to extend around the edge of the crown. This length can easily be found by measuring the length of the edge with a tape measure. Then, beginning at the middle of the overlap of the wire, sew one edge of the strip to the edge of the crown, using the back-stitch, as shown in Fig. 19, and continue all the way around, fastening it inside the crown. Now fold the bias strip over so that it forms a roll, as shown in Fig. 20, and sew its other edge to the crown on the outside, using the back-stitch, as before. The result will be a soft, rolled brim that can be bent to different shapes and held by means of pieces of ribbon wire sewed to the brim.

15. Reducing Size of Pressed Crown.—If a pressed buckram crown is too large, its size may be reduced without a great deal of difficulty. First divide the edge into quarters, which may be done with the gauge used for marking off eighths, by using each alternate mark. Draw a line from front to back over the center of the crown, and another line from side to side, and cut the crown along these lines, first removing the wire at the edge. The crown will then be divided into four triangular pieces. Cut off a strip $\frac{1}{4}$ in. wide from each side edge of each of these four pieces, but not from the bottom. Then fasten the four pieces together again, as shown in Fig. 21, by stitching them to two buckram bands *a* and *b* set inside the crown. The pieces may be pinned to the buckram bands to hold them in place, and the pins can be removed as the stitching proceeds. The

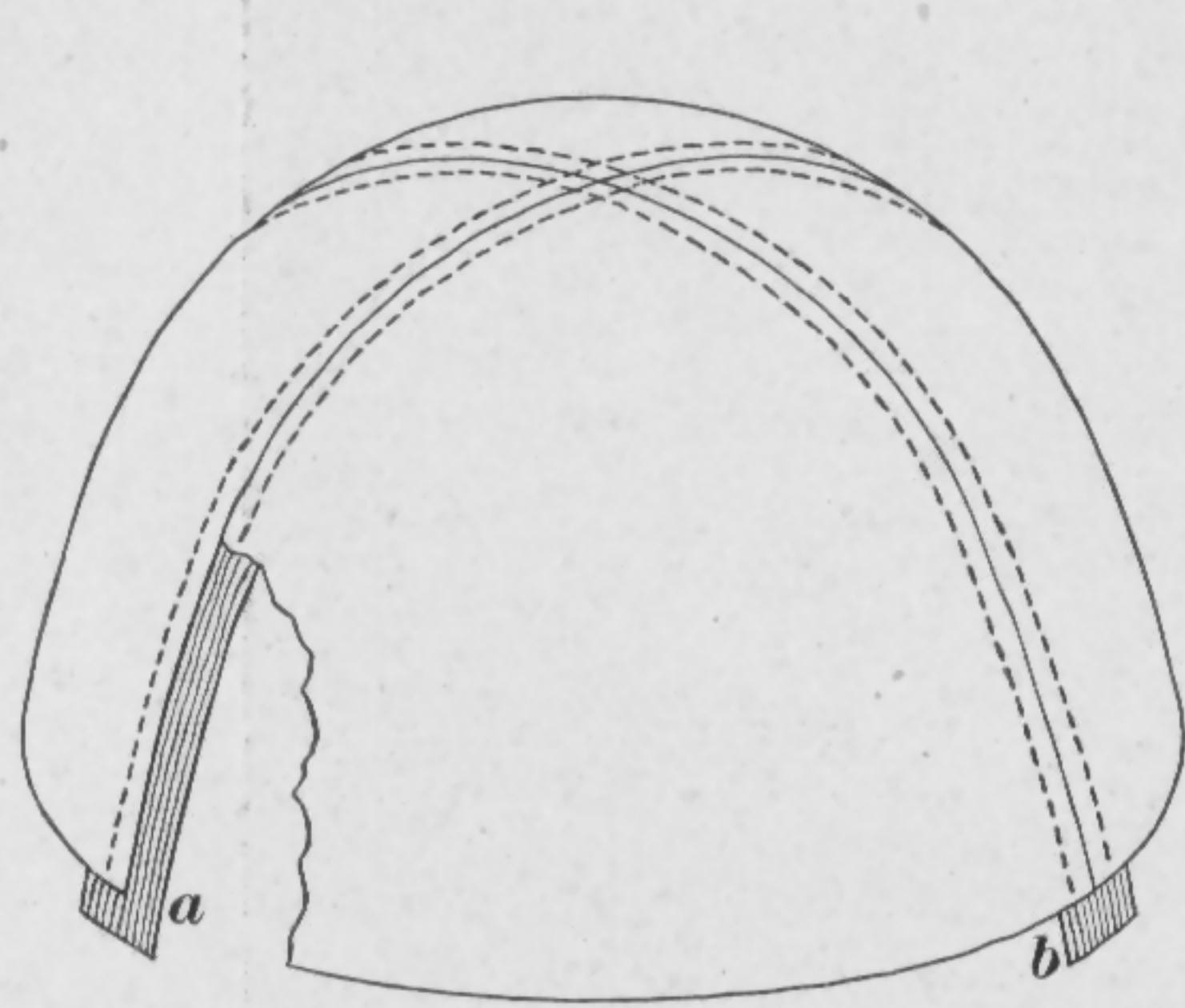
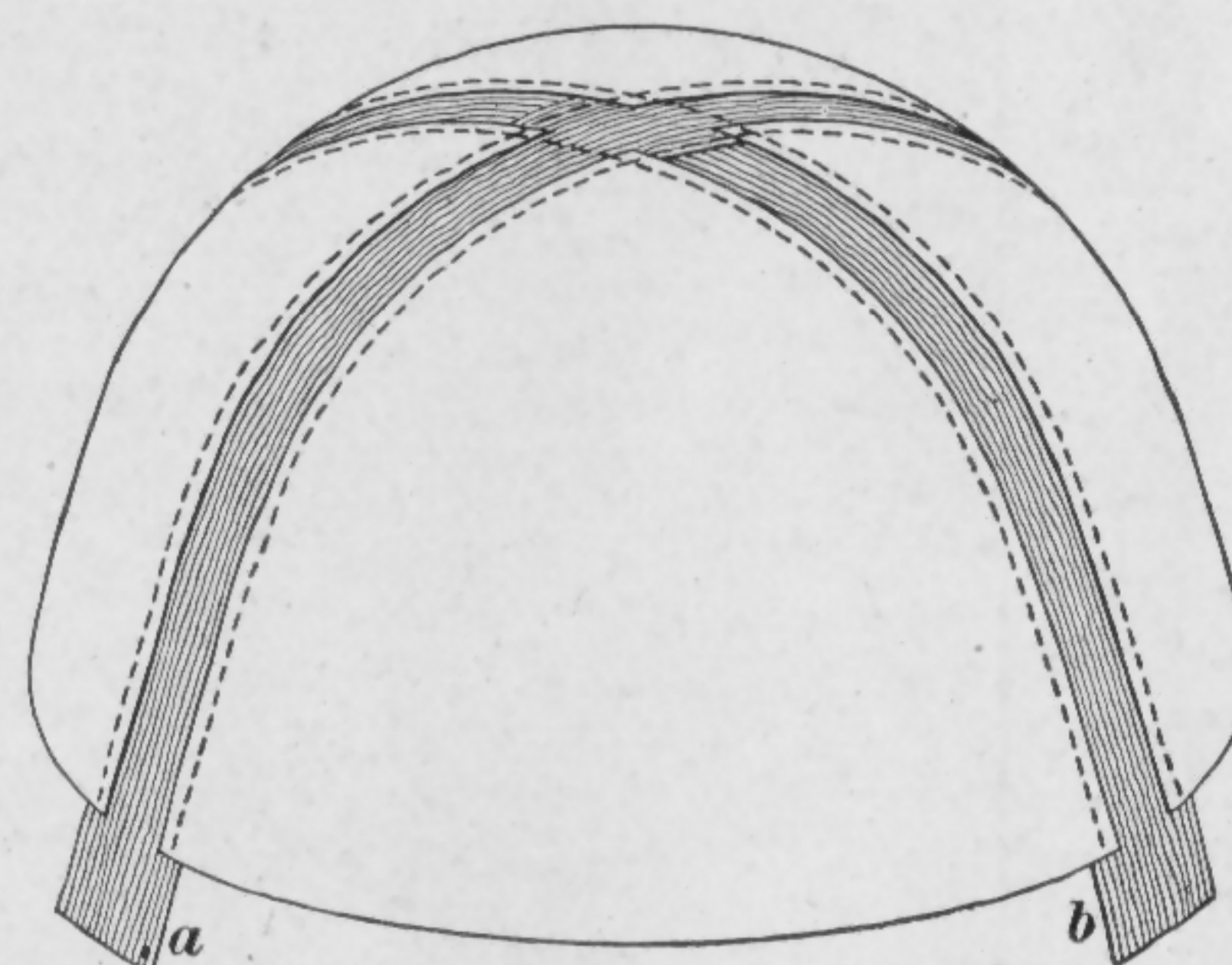


FIG. 21



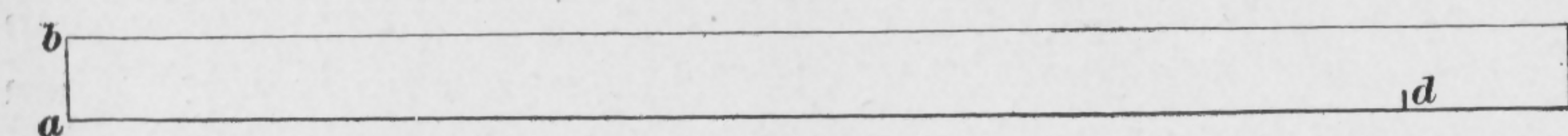
F.G. 22

stitches should be not over $\frac{1}{4}$ in. long. When the four pieces have been sewed together, put on the wire at the lower edge by overcasting.

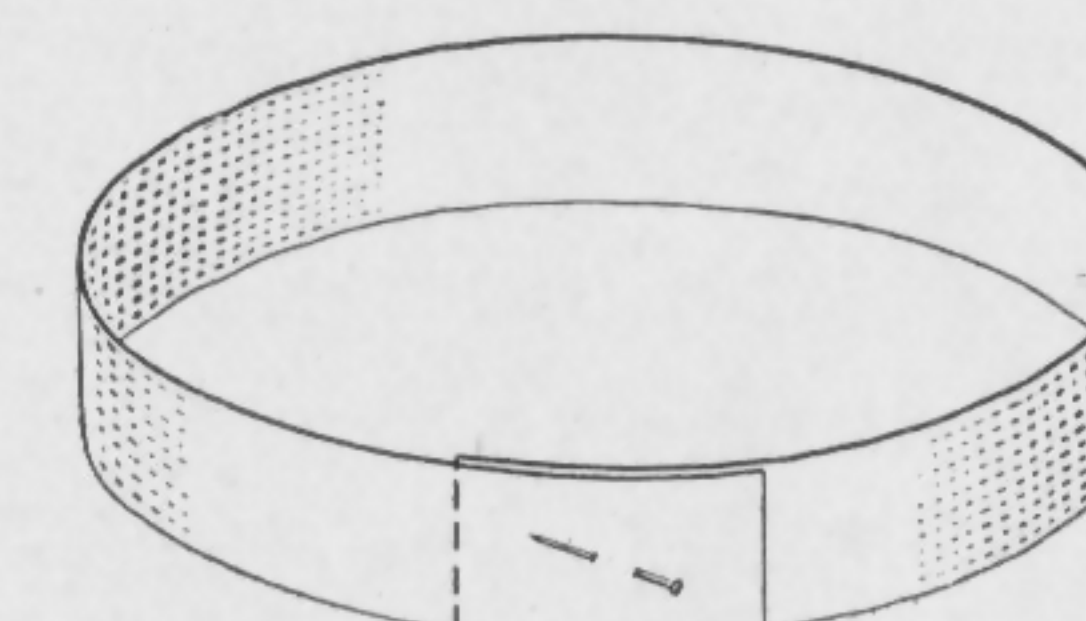
16. Enlarging Size of Pressed Crown.—It is possible that a pressed buckram crown may be too small, in which case it may be enlarged just as easily as it can be made smaller. The edge is divided into four equal parts, lines are drawn across the top from front to back and from side to side, and the crown is cut into four parts on these lines. Then two strips of buckram, as shown at *a* and *b*, Fig. 22, are inserted, and the four pieces are stitched to them, thus forming the enlarged crown. The width of these strips must be sufficient to increase the size of the crown the desired amount and at the same time furnish the width required for stitching the edges. The wire at the bottom is removed before the crown is cut, and is replaced by a longer wire when the crown has been enlarged.

CROWNS MADE BY HAND

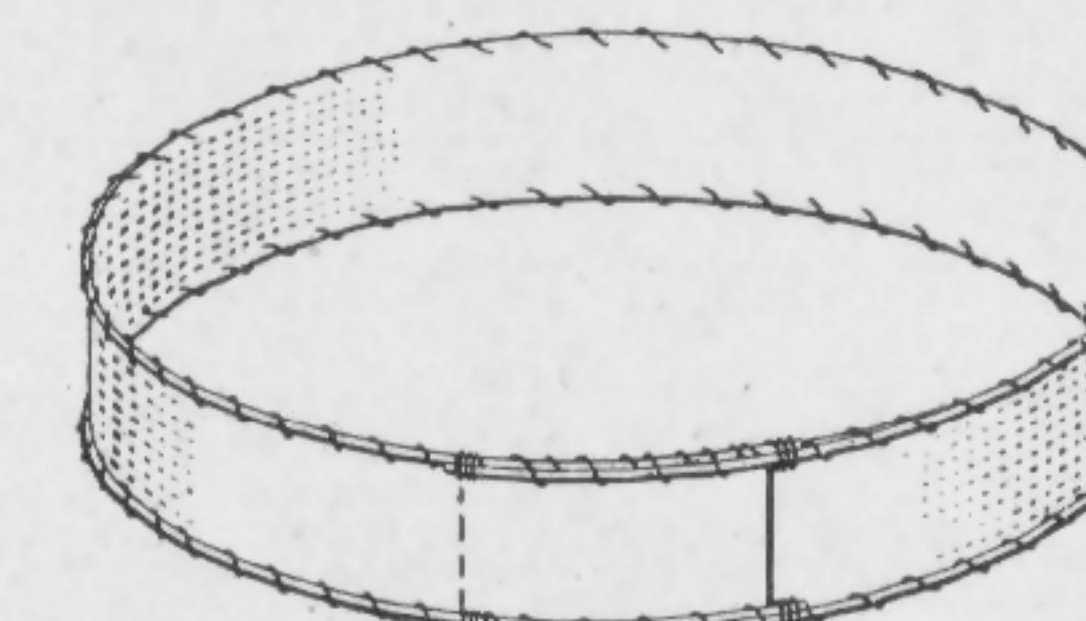
17. Head-Size Bands.—To insure that a hand-made solid crown will fit the head correctly when completed, it is necessary to proceed very much in the same way as when making a skeleton crown; however, instead of making a head-size wire only, a complete head-size band is constructed. A **head-size band** is simply a strip of buck-



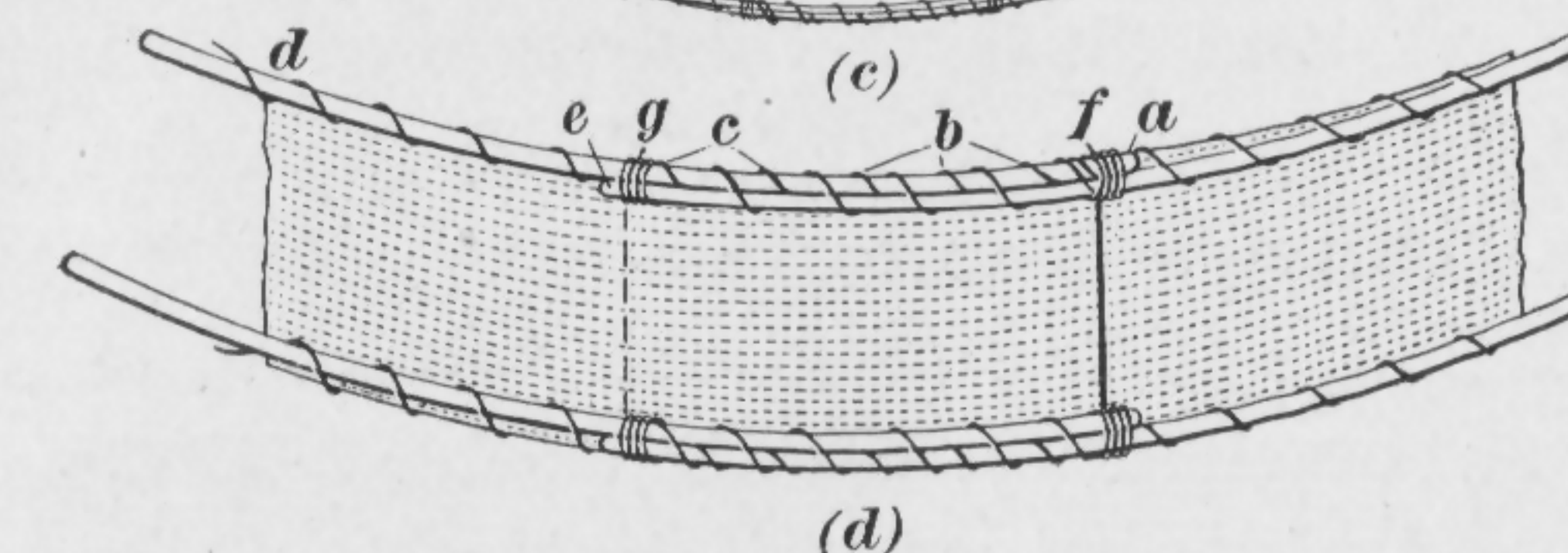
(a)



(b)



(c)



(d)

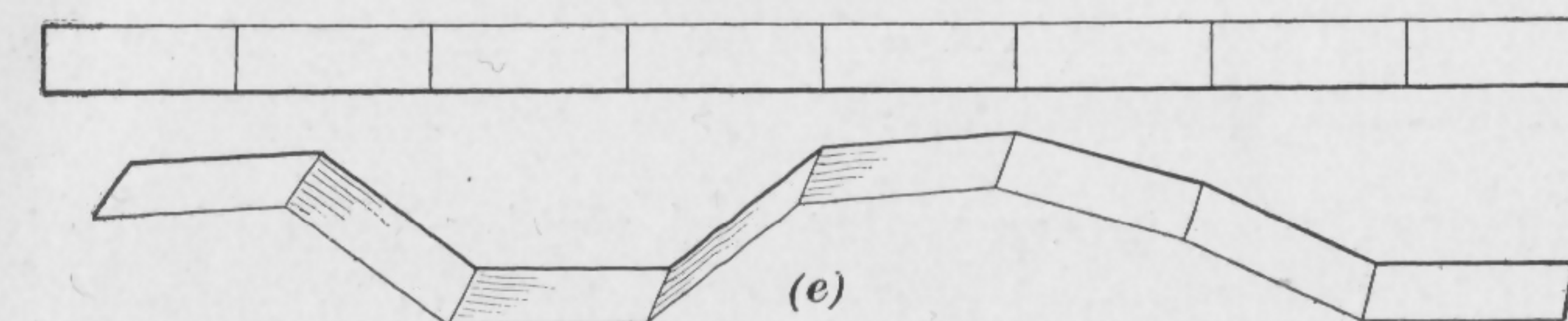


FIG. 23

ram or some other similar material, cut to the head-size of the wearer with allowance for a 3-in. overlap, bent to a circle, and stiffened and held together by having wires sewed to it at the top and bottom edges. To indicate the method to be followed, the construction of a head-size band $1\frac{1}{2}$ in. wide, for a head-size of 24 in., will be described. The various steps may be more clearly understood by referring to Fig. 23. First cut a strip of buckram as shown in (a), having the

desired width $a b$ of the band, which in this case is $1\frac{1}{2}$ in. Make this band 27 in. long from a to c and at the end mark off the length $c d$ equal to 3 in. for making the lap. If the head-size is not known, cut the strip somewhat longer, place it around the head in the same way as in measuring the head-size with a piece of wire, and thus make certain that the correct head-size will be obtained. Allow 3 in. more for making the lap, and cut off the extra length of the strip. Bend the strip into a ring, overlap the ends, placing the point a even with the mark d , and pin the ends together, as shown in (b). Then take a piece of No. 21 brace wire and sew it fast to the upper edge of the band with an overcast-stitch, as shown in (c). Fasten another wire in the same manner to the lower edge.

18. An enlarged view of the overlapped ends of the head-size band is given in Fig. 23 (d) to show clearly how the brace wires are attached. Take one end of the piece of brace wire, set it at a , and fasten it to the overlapped ends of the band by the overcast-stitches b and c . Continue to d and so on around, putting the needle through the band close to the wire. When the wire has been sewed fast all around and the point a has been reached, lap the wire the usual amount, 3 in., and cut it off at e . Then make several tight stitches at f over both wires, to bind them firmly, continue the overcasting to g over both wires, and finish the sewing at g by making several firm stitches in the same way as at f . Next, turn the band upside down and fasten the brace wire to the other edge in precisely the same manner. Remove the pin, and the completed head-size band will then appear as shown in (c). It forms the beginning of various kinds of crowns, and when it is wide it makes the side of the crown, being then called the *side crown*. The part that covers the top of the crown is called the *top crown*.

19. Before the top crown is attached, the head-size band must be marked off into eight equal parts. This is done in order that the top crown may be attached evenly. The method of marking off the head-size band is exactly the same as that used in marking off a head-size wire. A narrow strip of paper is taken, stretched around the head-size band, and cut off exactly equal to the head-size, or the distance around the band. This strip is folded three times in succession, in the middle and then straightened out, as shown in Fig. 23 (e). The creases then divide it into eight equal parts. One of these parts is cut off to be used as a gauge in marking the head-size

band. The method of using the gauge is shown clearly in Fig. 24. Take the head-size band a and make a mark b along one edge, at some point on the overlap. Set one end of the gauge c opposite

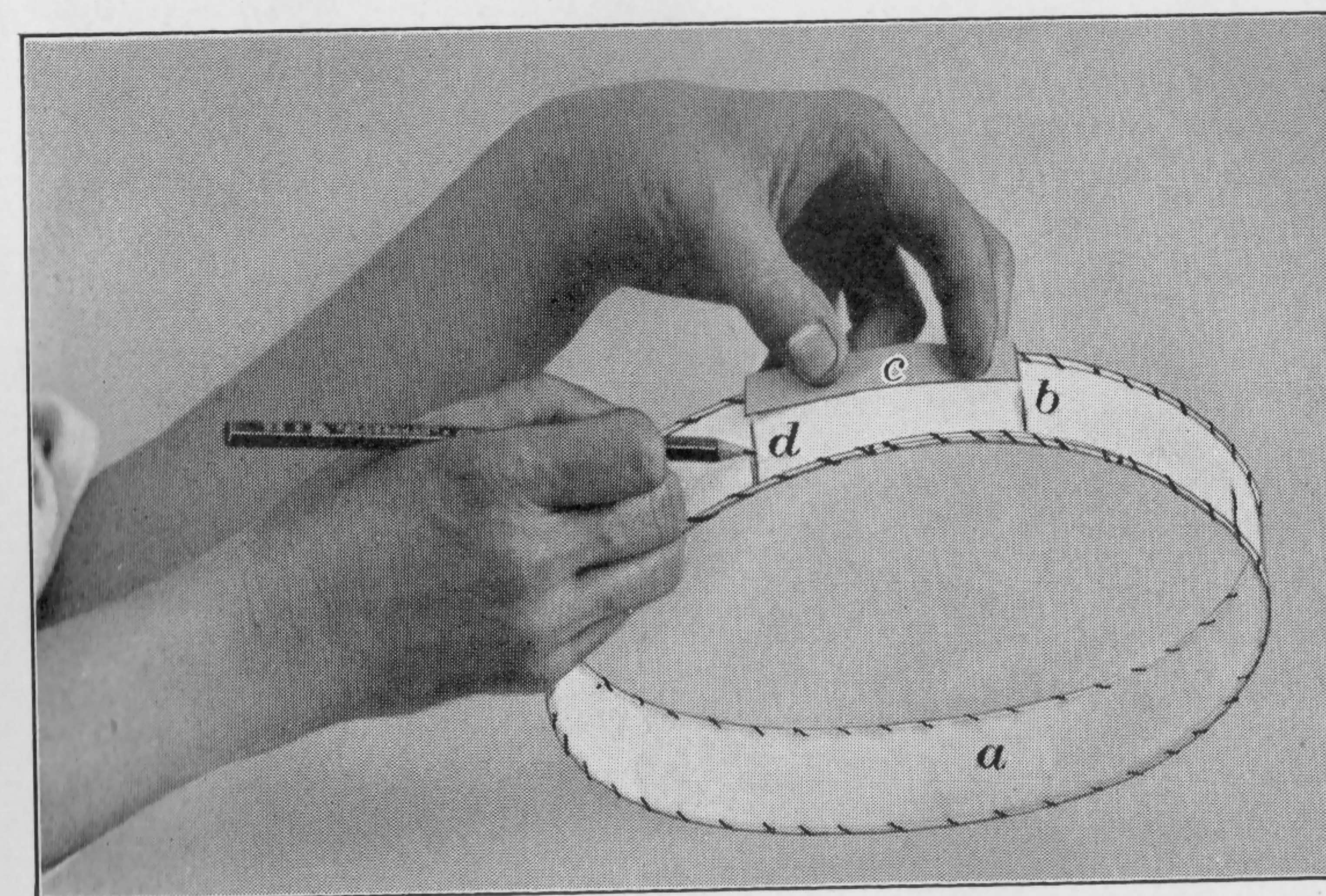


FIG. 24

this mark, hold it firmly to the band with the fingers of one hand, as shown, and opposite the other end make another mark d with a pencil. Shift the farther end of the gauge to the mark d , and repeat the operation until the eight divisions have been marked.

TAM CROWN

20. A solid foundation of the shape known as the **tam crown** is illustrated in Fig. 25. It consists of a head-size band a , made of buckram and bound with wire as already described, to which is fitted a top crown b made of elastic cloth or crinoline. The top crown is a piece of material cut to circular shape, drawn down over the top edge of the band, held in place by pins, and finally stitched to the band permanently. There is no definite rule to state how large this circle should be. The size must be governed by the length of the head-size band and by the amount of fulness desired in the crown; consequently, it may vary from 10 in. to 24 in., according to the judgment of the maker. No matter how large or how small it may be, however, the

method of cutting it out will not change. If a pair of compasses are at hand, the points should be set so that the distance between them is half the required diameter of the circle and the circle should be drawn on the material as explained in connection with the description of the use of the compasses. If no compasses are available, the cutting of the circle may be done with sufficient accuracy by using a paper pattern made by folding and cutting a sheet of ordinary newspaper. In fact, throughout all these lessons it will be found that, as far as possible, use is made of such materials and appliances as are readily obtainable in the average home, and that special tools and devices are used only when they are absolutely necessary.

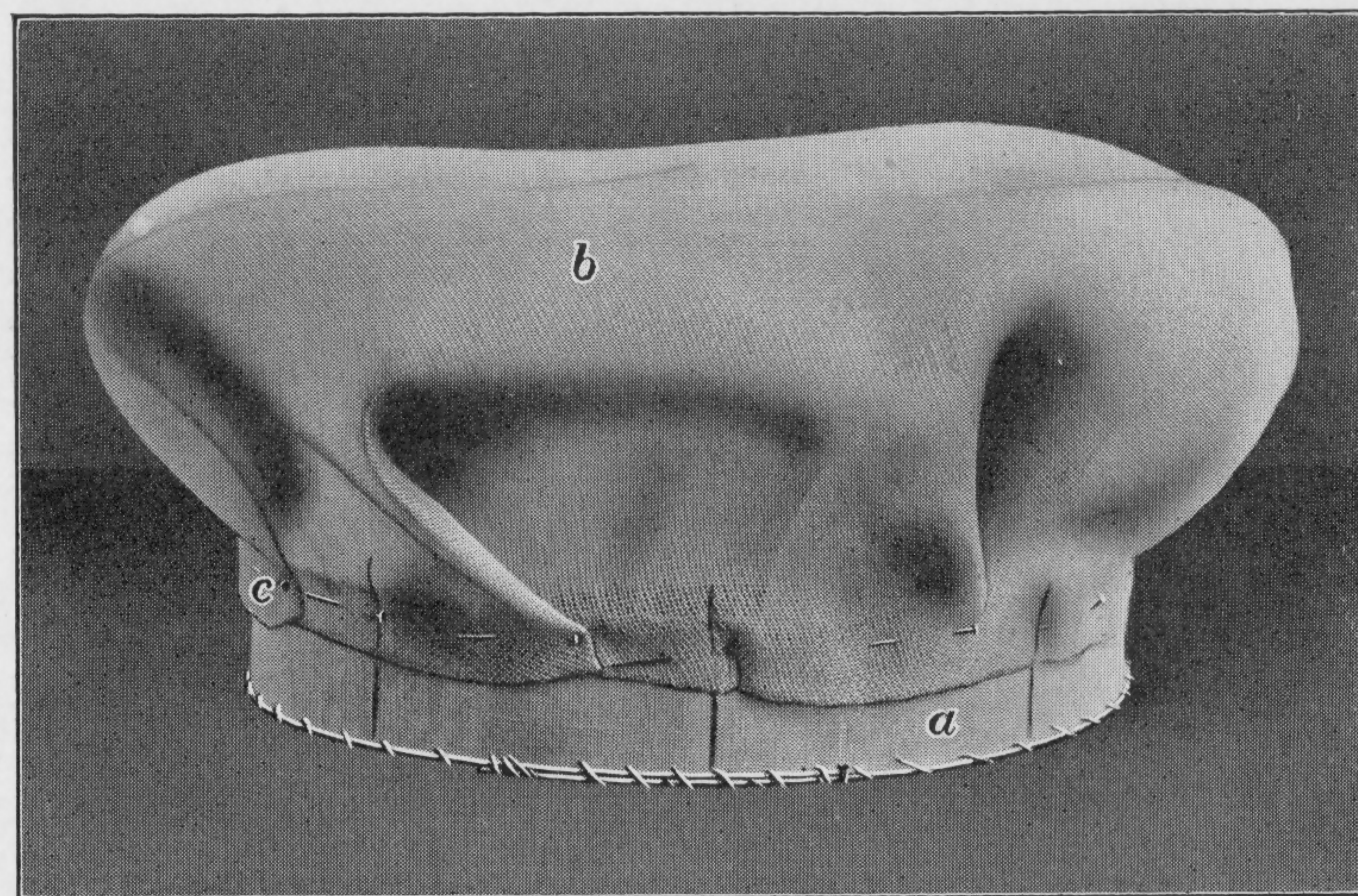


FIG. 25

21. Suppose, for the purpose of illustration, that the top crown *b*, Fig. 25, is to be made of a circular piece 18 in. across, that is, in diameter. Take a page of newspaper, fold the bottom of the page until it is even with the left-hand edge, as shown in Fig. 26 (a), and cut off that part of the page above the edge *a b*. Then unfold the page and lay it flat, when it will appear as in (b), a square. Fold this square twice in succession, on the lines *cd* and *ef*, and the folded piece will appear as in (c). Fold it again, from corner to corner, on the line *gh*, producing the piece shown in (d), and then fold the latter along the line *ij*, producing the piece shown in (e). Now take a tape measure, and from the point *k* measure off a distance *kl* of

9 in. and make a mark at *l*. On the other edge measure off the same distance from *k* to *m* and make a mark at *m*. Then with the shears

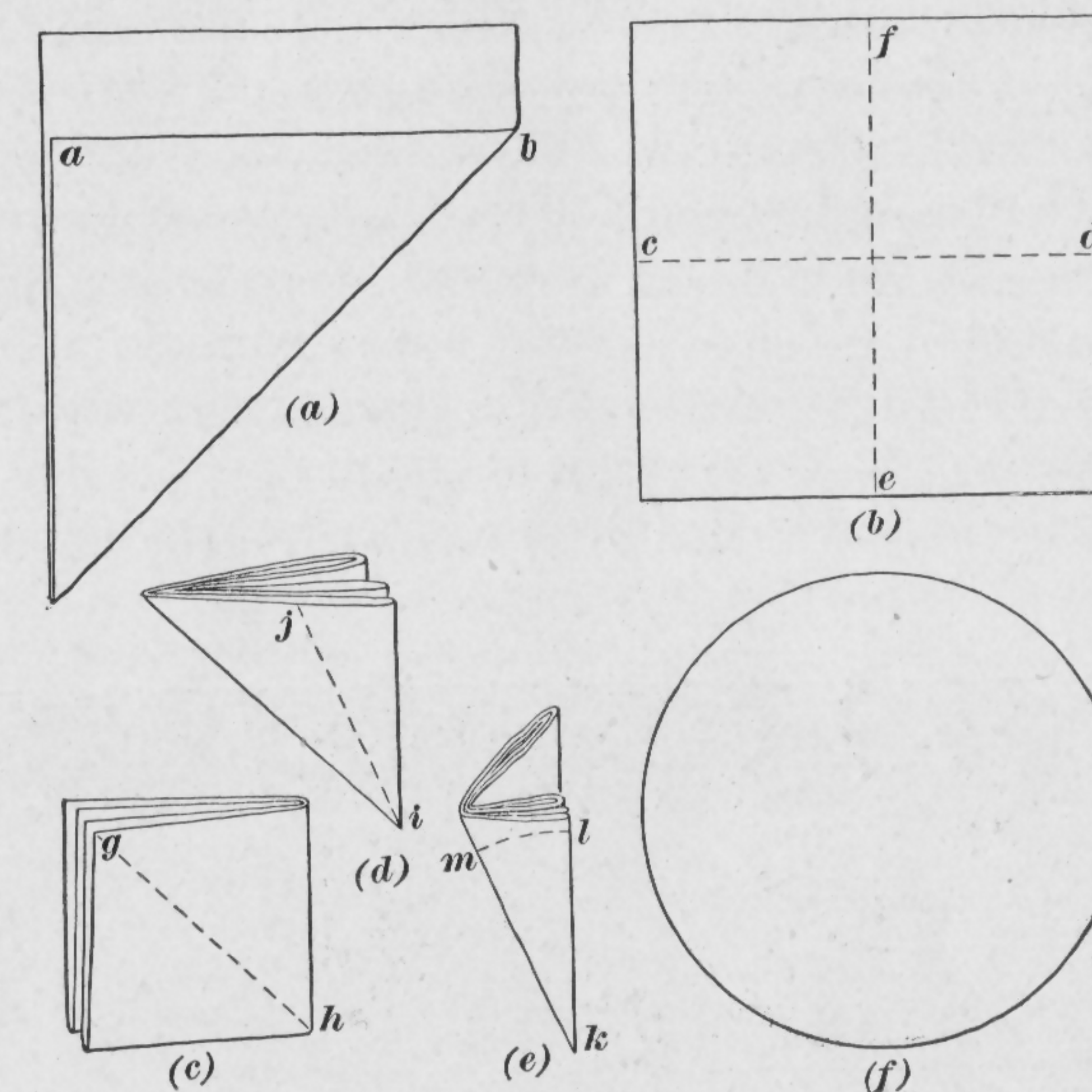


FIG. 26

cut across all the folds on a curved line from *l* to *m* and smooth out the folded piece. It will be found to have a circular shape, as shown in (f), and will measure 18 in. across from side to side. This is the pattern for cutting the piece that is to form the top crown.

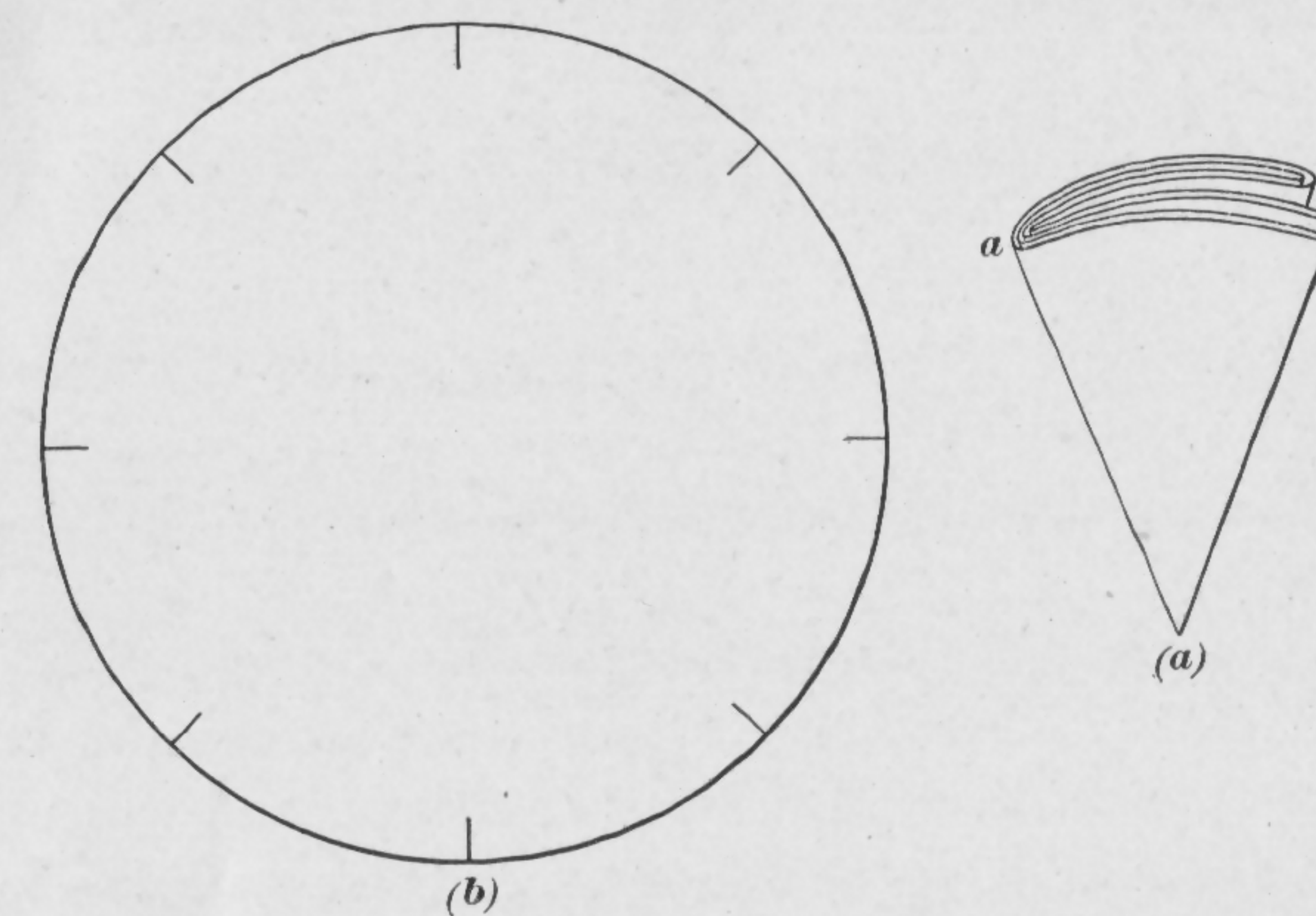


FIG. 27

22. When the circular pattern in Fig. 26 (f) has been prepared, lay it out flat on a piece of elastic cloth or crinoline of sufficient size.

and pin it to the material so that it cannot slide. Then cut the elastic cloth or crinoline, following the edge of the pattern closely, unpin the pattern, and the result will be a circular piece of elastic cloth or crinoline 18 in. in diameter. This piece is known in millinery work as a *plateau*, because it is flat and has the shape of a plate. Before it can be attached correctly to the head-size band its edge must be marked off into eight equal divisions. The easiest method of finding the points at which the marks are to be made is to use the circular paper pattern from which the plateau was cut. Fold the paper pattern three successive times along its middle line, when it will appear as shown in Fig. 27 (a). Press the folds at *a* and *b* firmly, so as to make sharp creases in the paper. Then open the pattern

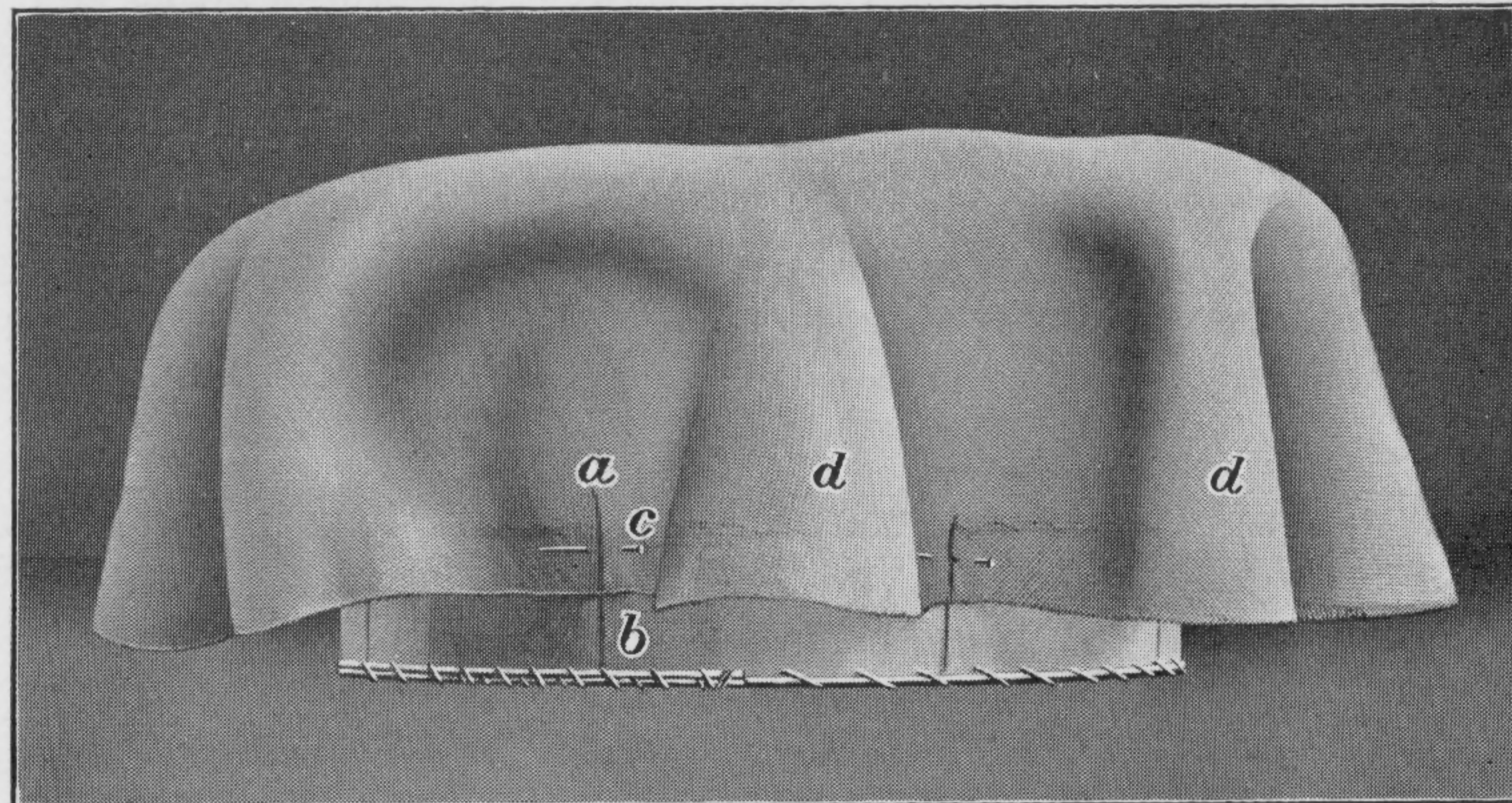


FIG. 28

out, and at each of these creases, which are eight in number, make a pencil mark, as shown in (b). Now lay the marked pattern on the plateau of elastic cloth or crinoline and make marks on the plateau at the eight points just under the marks on the pattern. The plateau is then ready to be attached to the head-size band.

23. The method of putting the plateau on the head-size band is illustrated clearly in Fig. 28. Both the plateau and the band have been marked off into eight equal divisions, and when they are put together, the marks on the one must coincide with the marks on the other. Place one of the marks on the plateau, as *a*, in line with the mark *b* at the back of the head-size band, with the edge of the plateau overlapping the band to about half its height, and stick a

pin *c* through the material and the band to hold them together. Proceed to the next point on the plateau, draw it down in line with the next corresponding mark on the band, and pin the plateau to the band. Continue in this manner until the two are pinned together at the eight points, when the foundation will have the appearance shown in the illustration. As the length of the edge of the plateau is much greater than the length of the band, the material will stand out in folds as shown at *d*, between the points where it is pinned to the band. To complete the work, press these folds down flat against the band, as shown at *c*, Fig. 25, and take particular care to see that all the plaits thus made point in the same direction around the band. Finally, sew the plateau or top crown to the band all around, removing the pins as the sewing proceeds, and using basting-stitches from $\frac{1}{2}$ to $\frac{3}{4}$ in. long.

BAKER'S CROWN

24. The baker's crown, shown in Fig. 29, is also a combination of a head-size band and a top crown made of a circular piece of crinoline, although elastic cloth may be used instead of crinoline, if

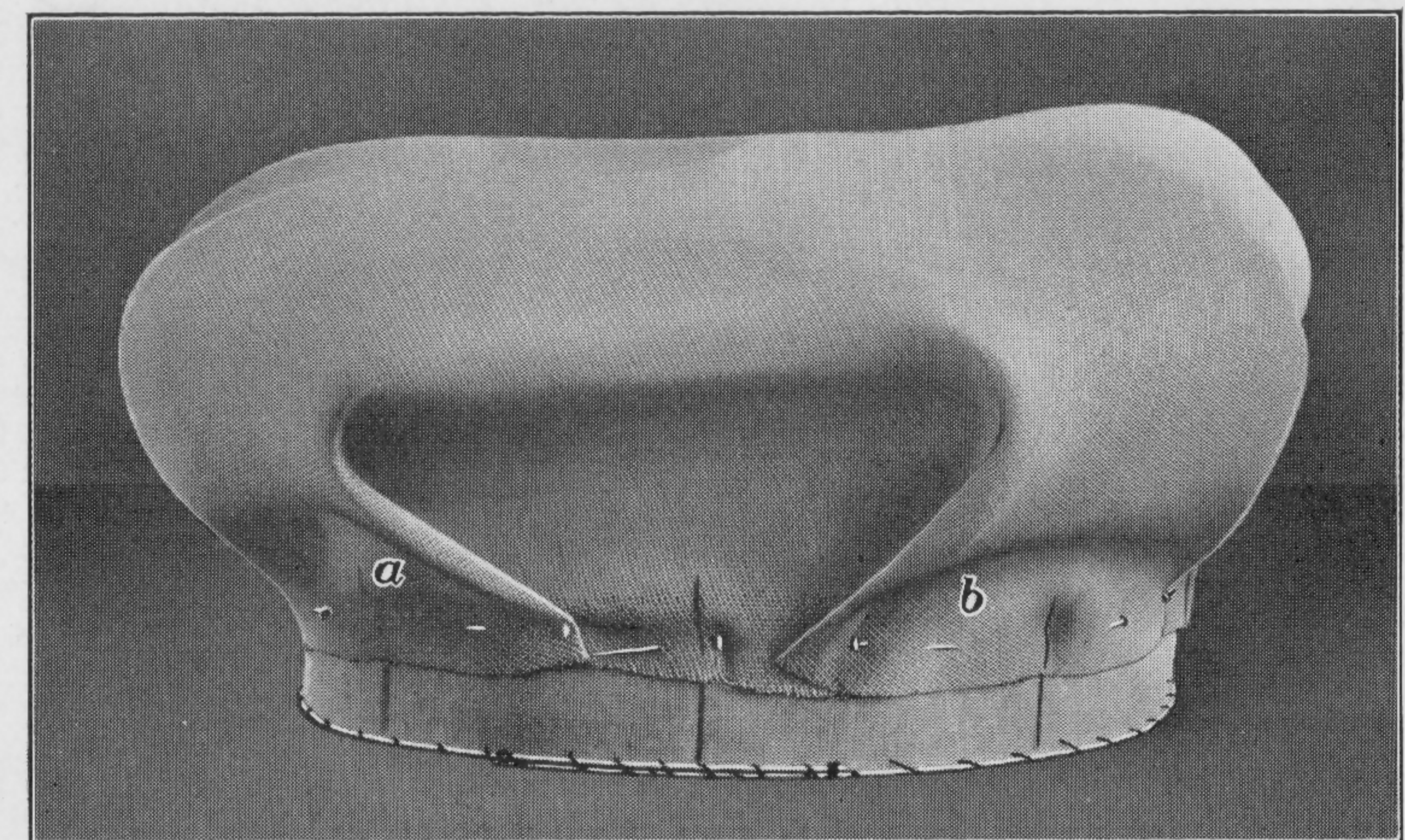


FIG. 29

desired. This crown is made in exactly the same manner as the tam crown, with the exception of the plaits formed by pressing down the folds of crinoline. These do not point in the same direction, as in the tam crown; instead, each pair of adjacent plaits are faced toward

each other, as shown at *a* and *b*. The result is that the top crown presents an apparently four-sided shape. The plateau is held to the band by pins, as shown, until it can be sewed fast. The edge of the crinoline plateau comes about half way down over the head-size band. The part of the head-size band above the line of stitching serves to prevent the top crown from crushing down and losing its shape. As in the case of the tam crown, so in the baker's crown, the diameter of the plateau may be varied from 10 to 24 in. according to the judgment of the designer or maker.

REMBRANDT CROWN

25. The **Rembrandt crown**, shown in Fig. 30, follows the same method of construction as the two preceding crowns, so far as the making of the head-size band and the cutting of the top crown are concerned. The band, however, has a height of 3 in., or double that of the tam crown. Assuming that the desired head-size is to be 24 in.,

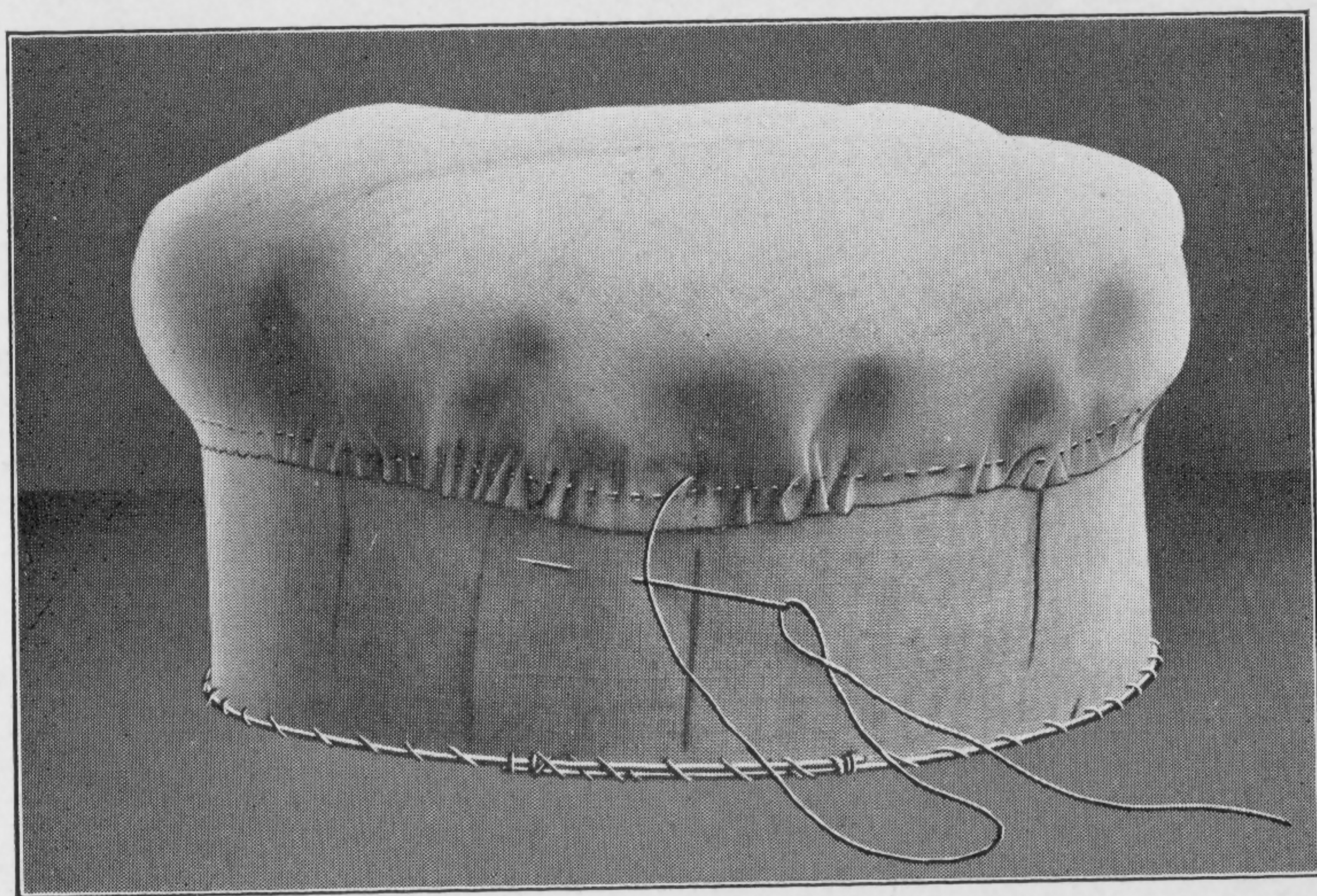


FIG. 30

the strip of buckram is cut 3 in. in width, and 27 in. long, is overlapped 3 in., pinned together, and then stiffened by attaching wires at the edges, as already described. It is marked off into eight equal parts, and then stretched to an oval measuring $8\frac{1}{2}$ in. by 7 in. Because it has this shape, a circular plateau cannot be used and the plateau

must be cut to an oval shape. The first step is to make a 24-in. head-size wire and stretch it to an oval of the required size, that is, $8\frac{1}{2}$ in. by 7 in. This wire is used as a guide for marking out the head-band size on the crinoline. The marking is done as shown in Fig. 31. The oval wire *a* is laid flat on the crinoline, not closer than 1 in. to the edge at any point, and a ruler *b* or a strip of wood is pressed down on it to keep it from moving or springing out of shape. With a lead pencil *c* then trace a line on the crinoline, following the curve of the wire. Be careful not to press outwards too heavily, or the wire will be sprung and the outline will be incorrect.

26. When the ruler and the head-size wire, Fig. 31, are removed, the oval outline of the head-size band will be found marked on the

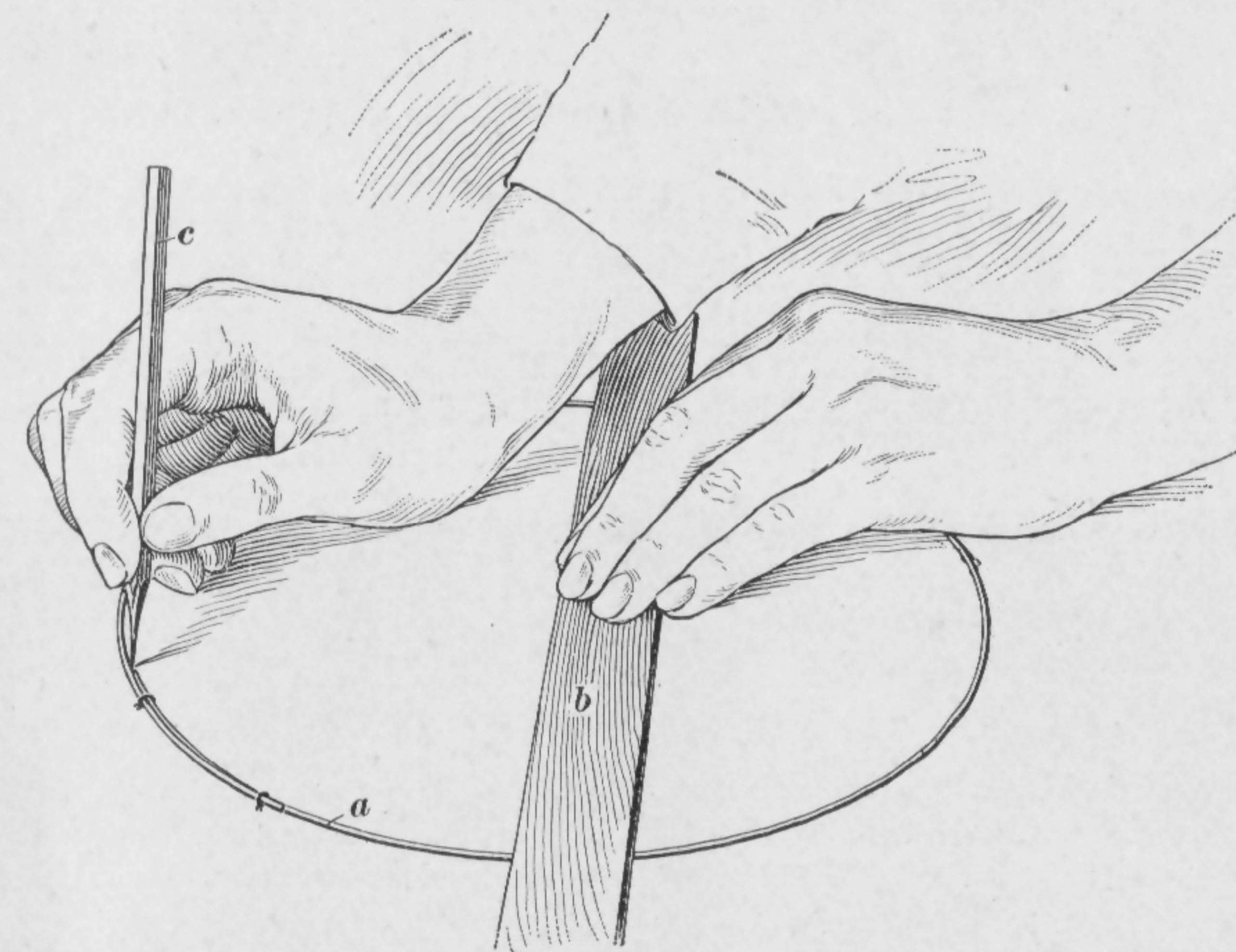


FIG. 31

crinoline. However, this is not the correct size for the plateau. It is merely the size of the top of the band, whereas, the top crown must be somewhat larger, so that it can be drawn down over the top edge of the head-size band, as shown in Fig. 30. If the plateau is made 1 in. larger than the head-size, all around, it will be of sufficient size; hence, cut a paper gauge 1 in. long, and using this gauge, make a series of marks 1 in. outside the oval outline that was drawn on the crinoline in Fig. 31. Connect these marks by a smooth curved line traced free-hand, and the result will be another oval measuring $10\frac{1}{2}$ in. by 9 in. Take the shears and cut out the plateau along the line of the larger oval. Fold the plateau in the middle lengthwise and crosswise, and crease it at the ends of these folds, thus locating

the front, back, and side points. Fold twice again to get the points midway between these, and mark the eight creases with pencil marks. Then, with a thread at least 30 in. long, make a line of running-stitches all the way around the plateau, $\frac{1}{4}$ in. from the edge, and draw this thread to form a gather in the edge of the crinoline. Take proper care to see that the gathers are even all the way around. Put the gathered top crown on the head-size band, as shown in Fig. 30, with the eight marks coinciding with those on the head-size band, draw up the gathering thread until the top crown fits snugly to the band, and fasten the thread so that it cannot slip back. Then sew the top crown to the head-size band all around, using basting-stitches from $\frac{1}{2}$ to $\frac{3}{4}$ in. in length.

APEX CROWN

27. A complete apex crown made of elastic cloth is shown in Fig. 32. This particular style is one of the newest and latest forms of outline crowns or shapes introduced in millinery. Inasmuch as the elastic cloth is a soft and pliable material and both the top and side

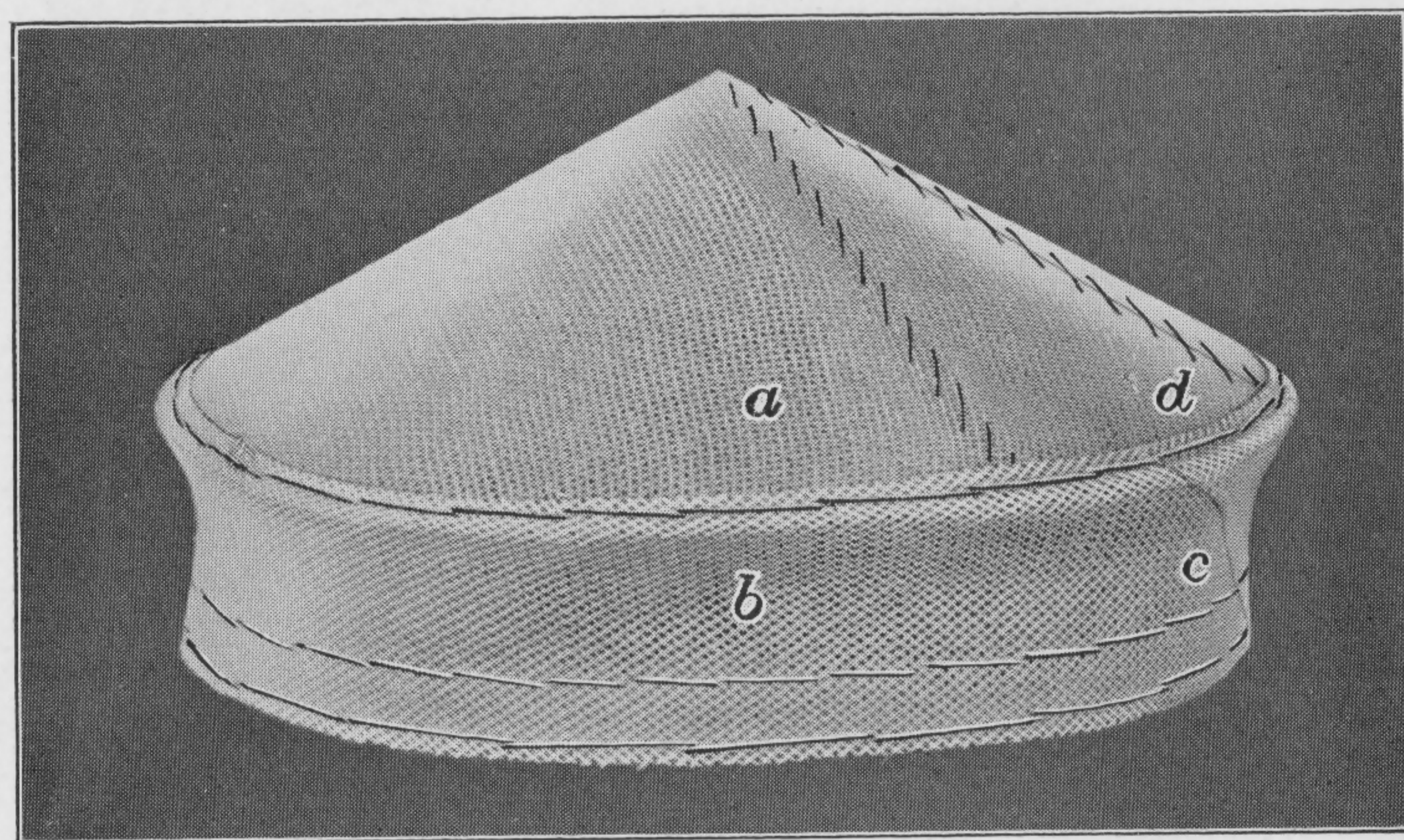


FIG. 32

crowns are made of it, a wire frame must be used to support it and keep it from losing its shape. The top crown *a* is made from a circular piece of material and the side crown *b* is a band that is made from a strip cut on the bias. To begin the construction of the solid

apex crown, fold a piece of newspaper as shown in Fig. 26 (e), measure off *kl* and *km* each equal to $5\frac{1}{2}$ in., and cut the folds across

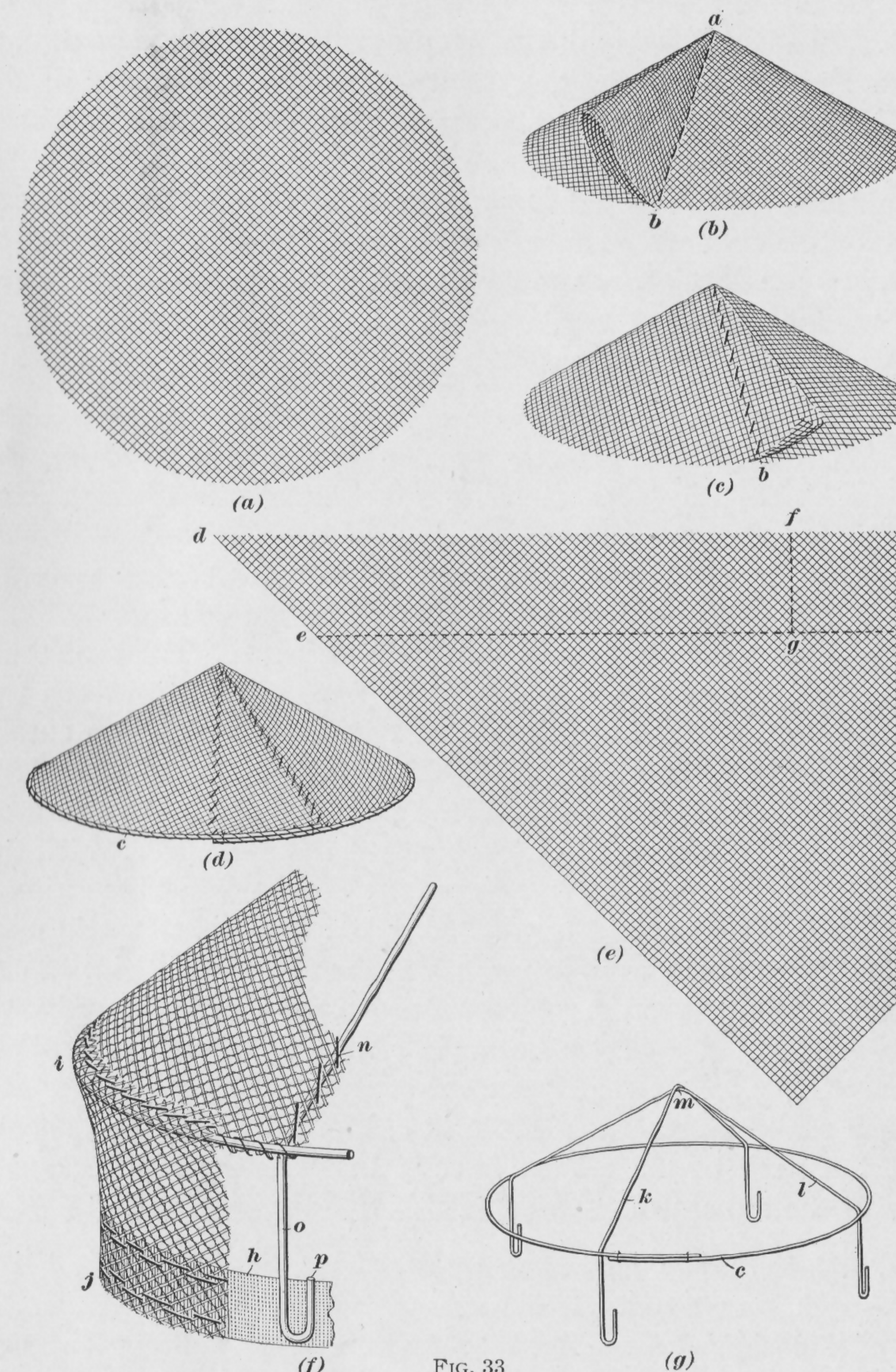


FIG. 33

on the curved line *lm*. This will produce a circular pattern 11 in. in diameter. Pin this pattern to a piece of elastic cloth, and cut

the elastic cloth to the shape and size of the pattern, producing the piece shown in Fig. 33 (a). The slope of the crown is obtained by making a fold in the circular piece and drawing it together, as shown in (b). The larger the fold, the steeper will be the slope of the top crown. In the particular case shown, the material taken up by the fold is exactly one-fourth of the circle. This fold is made as shown, and a basting thread is run through from the apex *a* to the edge *b*, to hold the top crown to the desired shape. Then the excess material is cut off, leaving enough to overlap and fasten permanently as shown in (c). Both the upper and the under edges should be stitched down in making this overlap.

28. After the top crown has been folded, cut, and sewed together so as to form the cone, a piece of brace wire must be fastened to the lower edge. Begin to fasten the wire at the point *b*, Fig. 33 (c), and continue all the way around, using the overcast-stitch and placing the wire on top of the material close to the edge. Overlap the wire to the same extent as was done at the edge of the conical piece, or about 2 in., cut the wire from the coil, stitch the end fast by overcasting, and tie the overlapped ends with tie wires. The top crown will then appear as shown in (d). The next step is to attach the side crown *b*, Fig. 32, which is simply a strip of elastic cloth cut on the bias and then sewed fast to the top crown all around, above the wire *c*, Fig. 33 (d). The width of the strip is made 3 in., measured on the bias. For example, let (*e*) represent the piece from which the strip is to be cut. Measure off *de* exactly 3 in., and cut the strip off as indicated by the dotted line. The actual width of the strip from one side to the other, as from *f* to *g*, will then be about $2\frac{1}{4}$ in. Take this strip and sew it to the top crown above the wire and on the outside, with a lap of $\frac{1}{4}$ in., as shown in (f), using a $\frac{3}{4}$ -in. back-stitch. The meeting ends of the strip are cut so as to match each other and are then sewed together, as shown at *c*, Fig. 32. This seam should be at the back of the crown, directly underneath the overlapped part *d* of the top crown.

29. At the lower edge of the side crown, Fig. 33 (f), the head-size band *h* is fastened. It is made of ribbon wire $\frac{3}{4}$ in. wide. A piece of this wire is taken, placed around the head to obtain the exact head-size, cut off with the proper allowance for overlap, and sewed to make a circular band, which is then attached to the lower edge of the side crown by two rows of $\frac{3}{4}$ -in. back-stitches. As the head-size

band is smaller in diameter than the circle of brace wire at the edge of the top crown, the side crown will have a bell-shaped outline, as indicated by the inward curve from *i* to *j*. The crown is now completed, except for the fact that it is soft and pliable, since the elastic cloth of which it is made does not have the stiffness of buckram. To enable the crown to hold its shape, two stiffening wires are used, one being fastened across from front to back, inside the crown, and the other from side to side. They are made of No. 21 brace wire, and their shape is shown clearly in (g), which illustrates the circular wire *c* that is sewed to the edge of the top crown and the two wires *k* and *l* that fit up into the crown and extend downwards to the lower edge of the head-size band. These wires are not tied to the wire *c* nor to each other at *m*, as in the usual wire frame. Such tying is not necessary, because the wires are sewed to the elastic cloth, and are thus held in place. The illustration (g) merely shows the shapes of the supporting wires and their relative positions in the completed frame.

30. The wires *k* and *l*, Fig. 33 (g), are not measured to certain definite lengths before being bent and attached, but are put in place by trial. Two pieces of wire each long enough to reach across the crown on the inside, following the outline of the crown, are cut off the coil, and each is bent at the middle to form a point. The parts of the wire on each side of this bend are then straightened by drawing them between the thumb and forefinger, at the same time pressing out the natural curve of the wire. When they have been straightened, take one of these bent wires, push the bend up into the apex of the crown until the top crown is held out to its proper shape, and note the point where the straight end of the wire rests against the wire *c*. At this point bend the end of the wire straight down. Then do the same with the other half of the wire. Next, fasten the wire in place by pinning it to the top crown from back to front. Take the other wire, put it inside the crown from side to side, bend the ends down at the points where they touch the wire *c*, and pin it fast to the top crown. Now sew the two wires fast to the top crown, as shown at *n*, view (f), using the overcast-stitch. It now remains to bend the ends of the two wires and fasten them to the side crown. To do so, stretch the side crown down, but not too tightly, and bend the end *o* of the wire to a U shape, as shown, with the bottom of the bend almost even with the lower edge of the head-size band, and cut

off the top at p , even with the top of the band. Then slip the **U**-shaped end down between the band and the side crown and stitch it fast by a few stab-stitches. Bend and fasten each of the other three ends in the same way, taking care to see that the side crown has the same height all around, and the crown is finished.

BOX CROWN

31. The box crown shown in Fig. 34 is oval in shape and has a height of 3 in. The side crown a is a strip of elastic cloth 27 in. long and 3 in. wide, overlapped 3 in., so as to produce a band measuring 24 in. around. It is wired at the top and the bottom, and the wires are stretched to ovals measuring $8\frac{1}{2}$ in. by 7 in. The top crown b , frequently called the *tip*, is made of the same material,

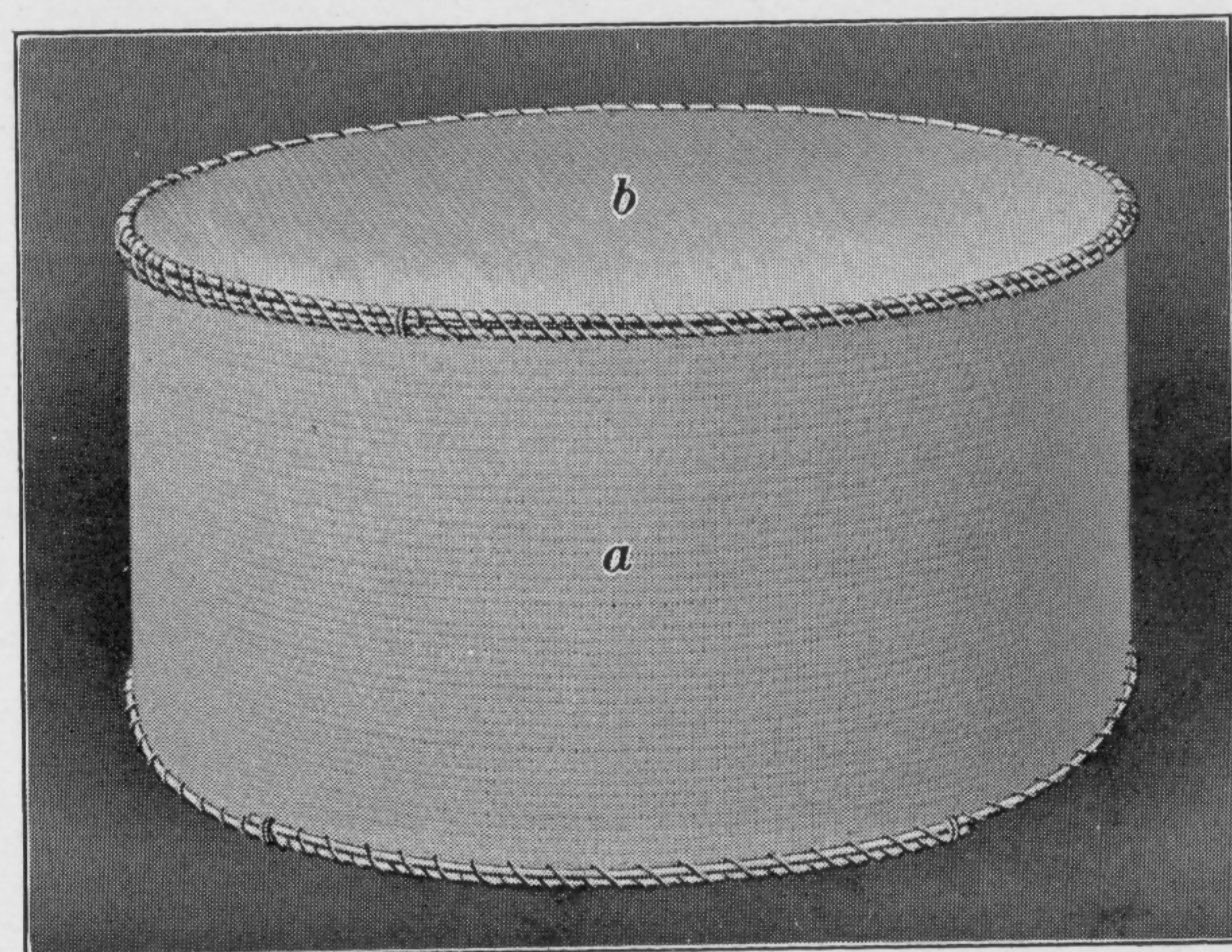


FIG. 34

cut to an oval $8\frac{1}{2}$ in. long and 7 in. wide. The oval side crown a can be used to mark out the shape of the tip b . It is set on a piece of elastic cloth of sufficient size and held down firmly, and a pencil is run around the bottom wire, inside the band, thus marking an oval. The elastic cloth is then cut along this line, the edge is bound with wire, and the side crown and the tip are joined by overcast-stitches, as shown.

SLOPING CROWN

32. The material used in the construction of the two parts of the sloping crown shown in Fig. 35 is lacette. The tip shown in (a) is circular and is of the proper size to fit the top of the side crown shown in (b). The bottom of the side crown is made equal to the required head-size. The band that forms the side crown is obtained by first cutting a pattern from a piece of newspaper. Take a double-page newspaper, as shown in Fig. 36 (a), and fold it along the center line $a b$. Take up the two bottom edges, as shown at $a c$ in (b), and fold them up along the center crease $a b$. Fold the paper again, along the line $a d$, producing the shape shown in (c), and then again along the line $a e$, bringing the paper to the shape shown in (d).

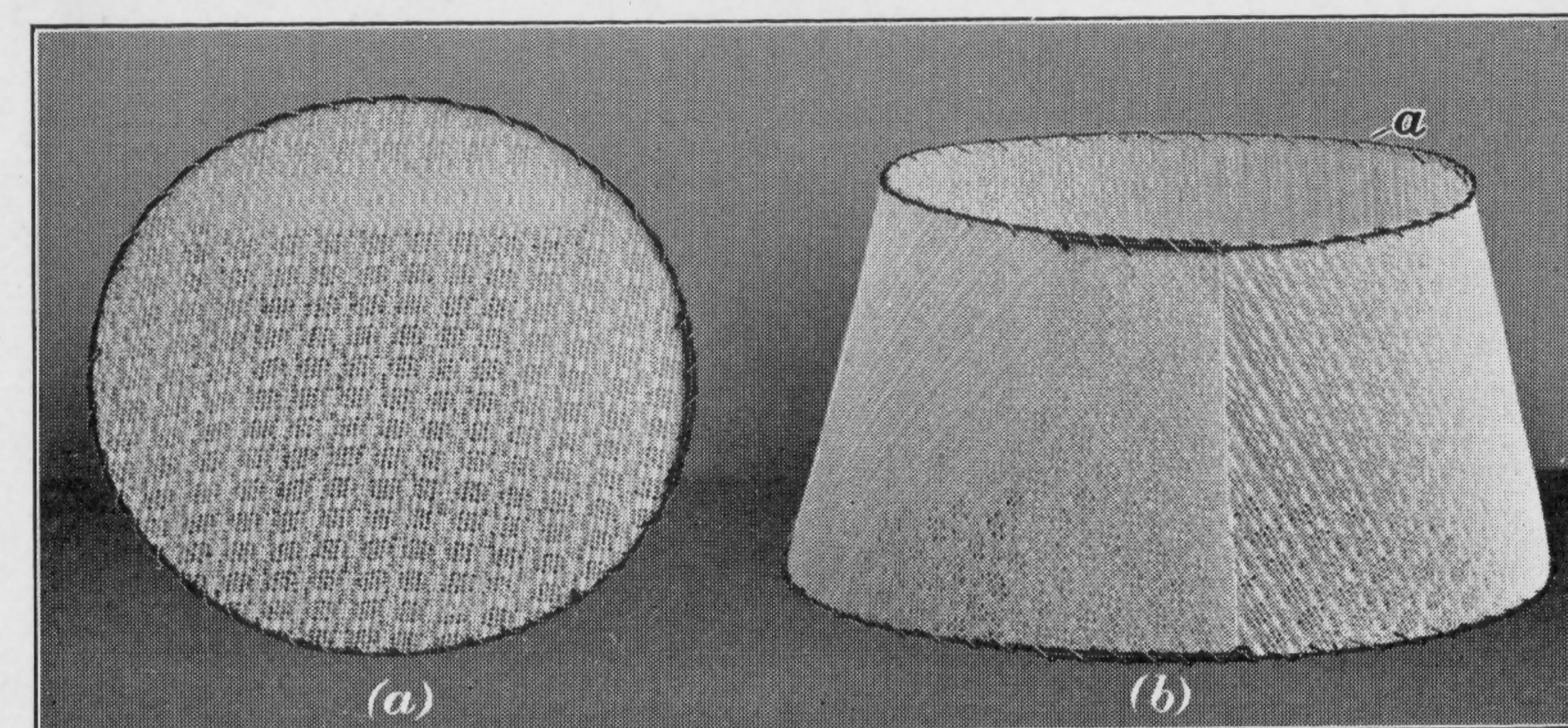


FIG. 35

From a measure off the distances $a f$ and $a g$, each equal to 15 in., and cut the folded paper across from f to g on a slight curve, as indicated by the dotted line $f g$. Measure off $f h$ and $g i$ each equal to 3 in., the desired height of the side crown, and cut the paper across from h to i .

33. Now take the piece j , Fig. 36 (d) that was cut off, unfold it, and lay it out flat. It will then appear as a long, curved strip, 3 in. wide, like that shown in Fig. 37 (a). In this illustration, the middle part of the strip is omitted, as shown by the gap at a , so that the illustration can be shown conveniently on the page. The omitted part is of the same shape and width as the part shown. Along the longer edge measure off the distance $b c$ equal to 24 in., or the

desired head-size, and mark off cd equal to 3 in. Now bring the point b over to the point c , so that the end from c to d forms an overlap, and pin the ends of the strip together. It will then appear as in (b). This pattern can then be tried on the head. If the slope is not pronounced enough, take the piece k , Fig. 36 (d), and cut off another end l , also 3 in. wide. Straighten this out, measure off

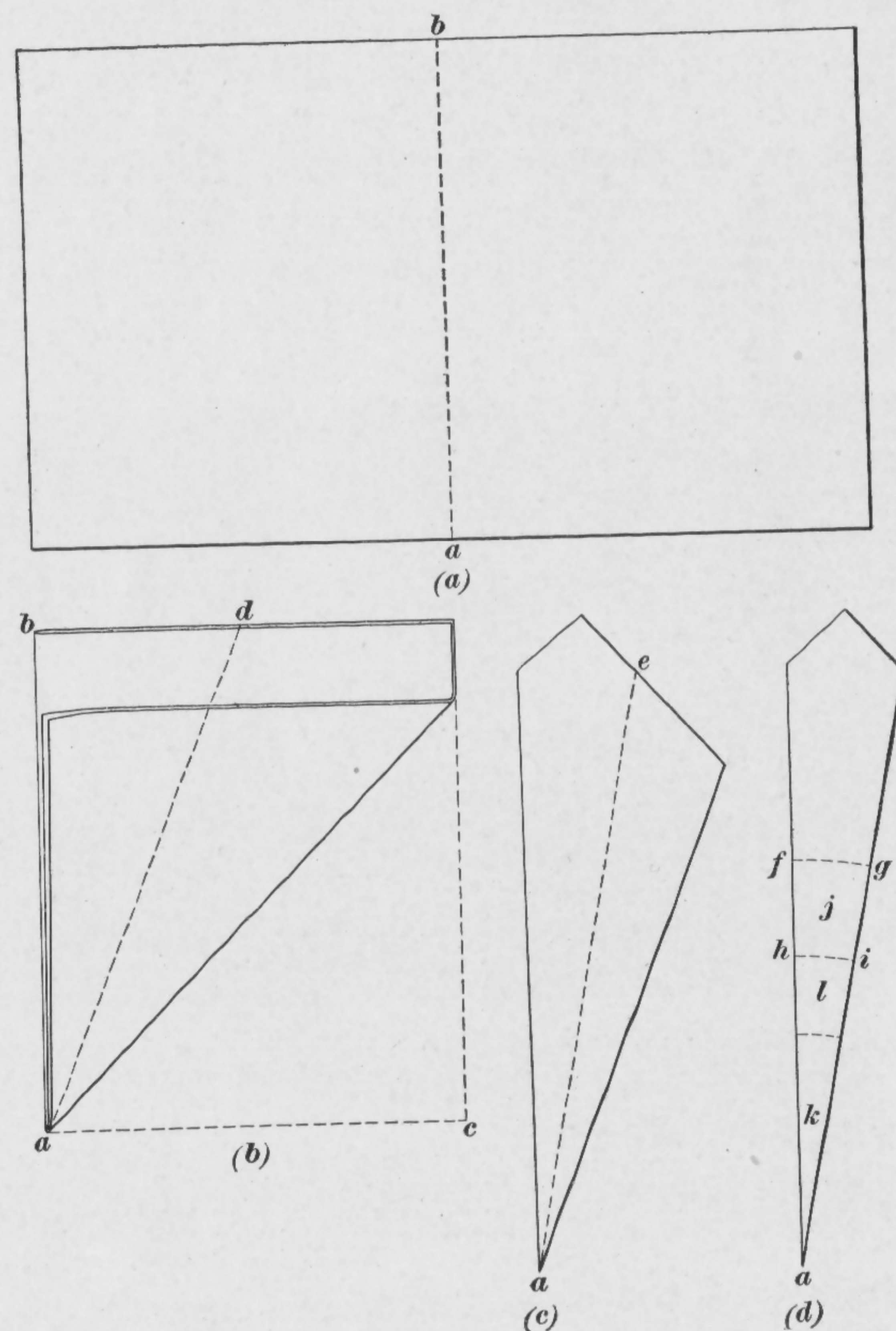


FIG. 36

24 in. on the long edge, and 3 in. for overlap, and pin the band together. It will be smaller around the top, and have more slope, than the first. The nearer the strip is cut to the point a , Fig. 36 (d), the greater will be slope of the band. When a pattern having the desired slope is obtained, unfasten its ends, pin it flat to a piece of lacette, and cut the lacette to a curved band of the same shape, using the paper as a pattern.

34. When the lacette has been cut to the shape of the pattern, unpin the pattern from it, bring its ends together and overlap them 3 in., and pin them together in the same manner as with the paper pattern shown in Fig. 37 (b). Then, using overcast-stitches, sew pieces of brace wire to the top and bottom edges, as shown in Fig. 35 (b). The tip shown in (a) must have the same shape and size as the top circle a in (b). Hence, turn the side crown upside down on a piece of lacette, mark around the inside of the wire a with a pencil, and cut out the lacette to the circle thus marked. Overcast a wire around the edge, to hold the material in shape, and the tip will appear as shown in (a). To complete the crown, place the tip on the small end of the side crown, and fasten the two together by

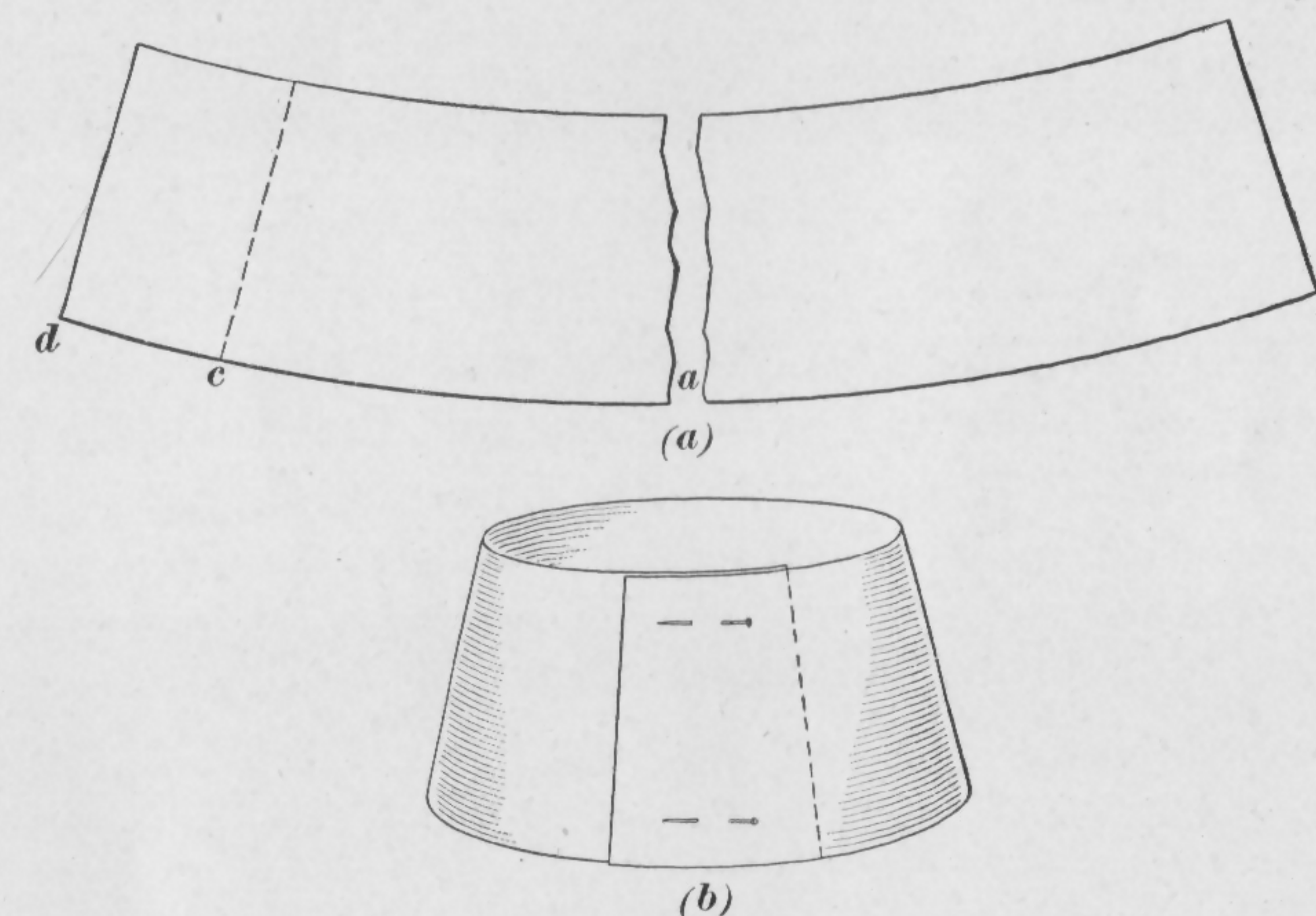


FIG. 37

overcasting the meeting edges, in the same way as the tip of the oval box crown was fastened to the side crown. The sloping crown may be made either round or oval.

35. When the tip and the side crown have been stitched together the wires should always be covered, so as to produce a smooth edge at the point where they come together. The method of covering them is very distinctly shown in Fig. 38, which represents a sloping crown. The tip a and the side crown c are joined by overcasting the wires at the edges. To prevent these wires from showing through or causing rough places when the frame is covered, a binding of crinoline is sewed over them in the manner indicated. The crinoline strip b is cut 1 in. wide on the bias and is sewed to the top of the side crown,

beginning at the overlap at the back, and using basting-stitches, with the longer parts of the stitches on the outside. The strip is

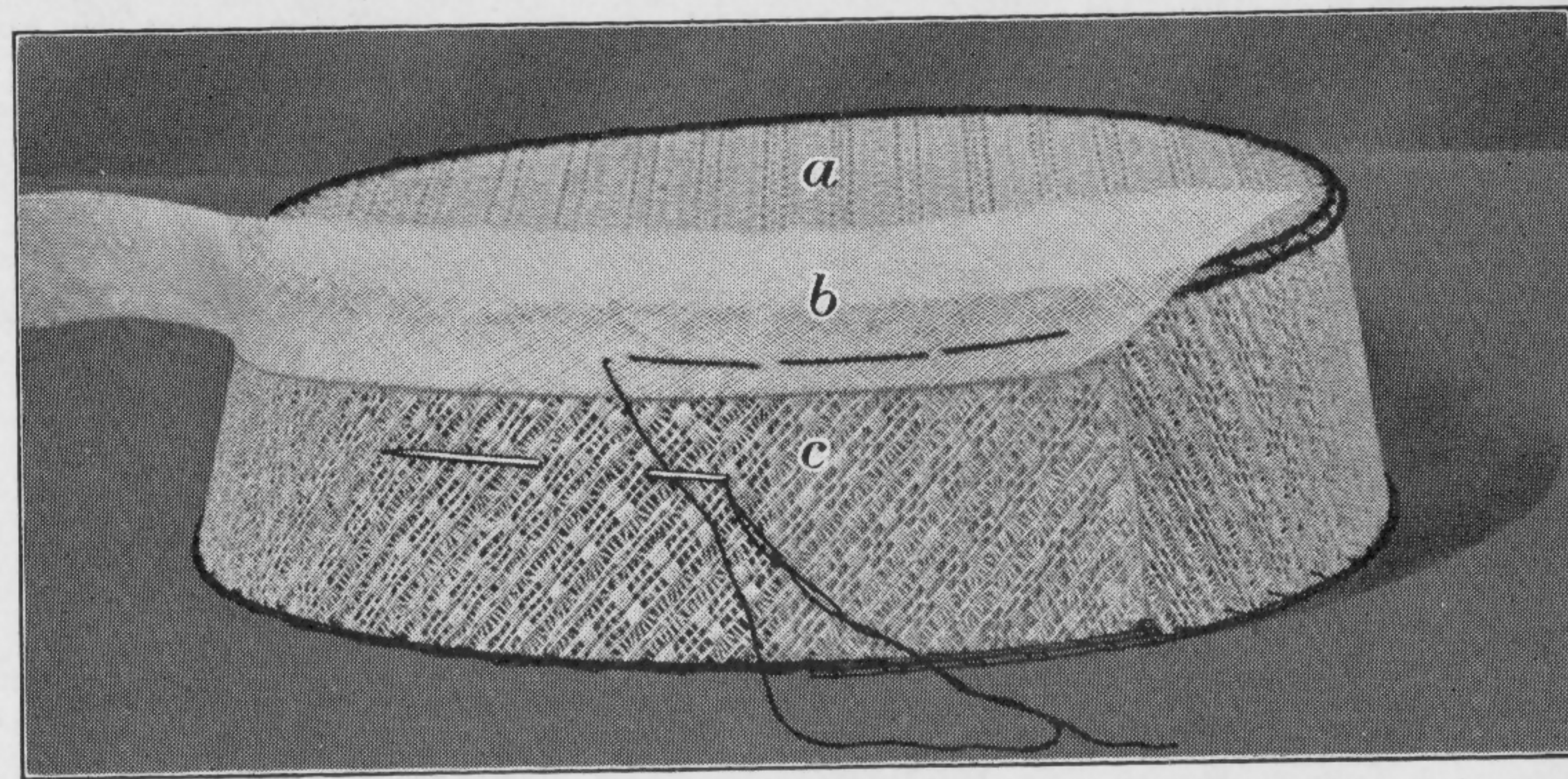


FIG. 38

then drawn over the wires and its other edge is stitched to the tip in the same way, as shown in Fig. 39. The fact that the strip is cut on the bias enables it to fit easily over the wires and lie flat on both the

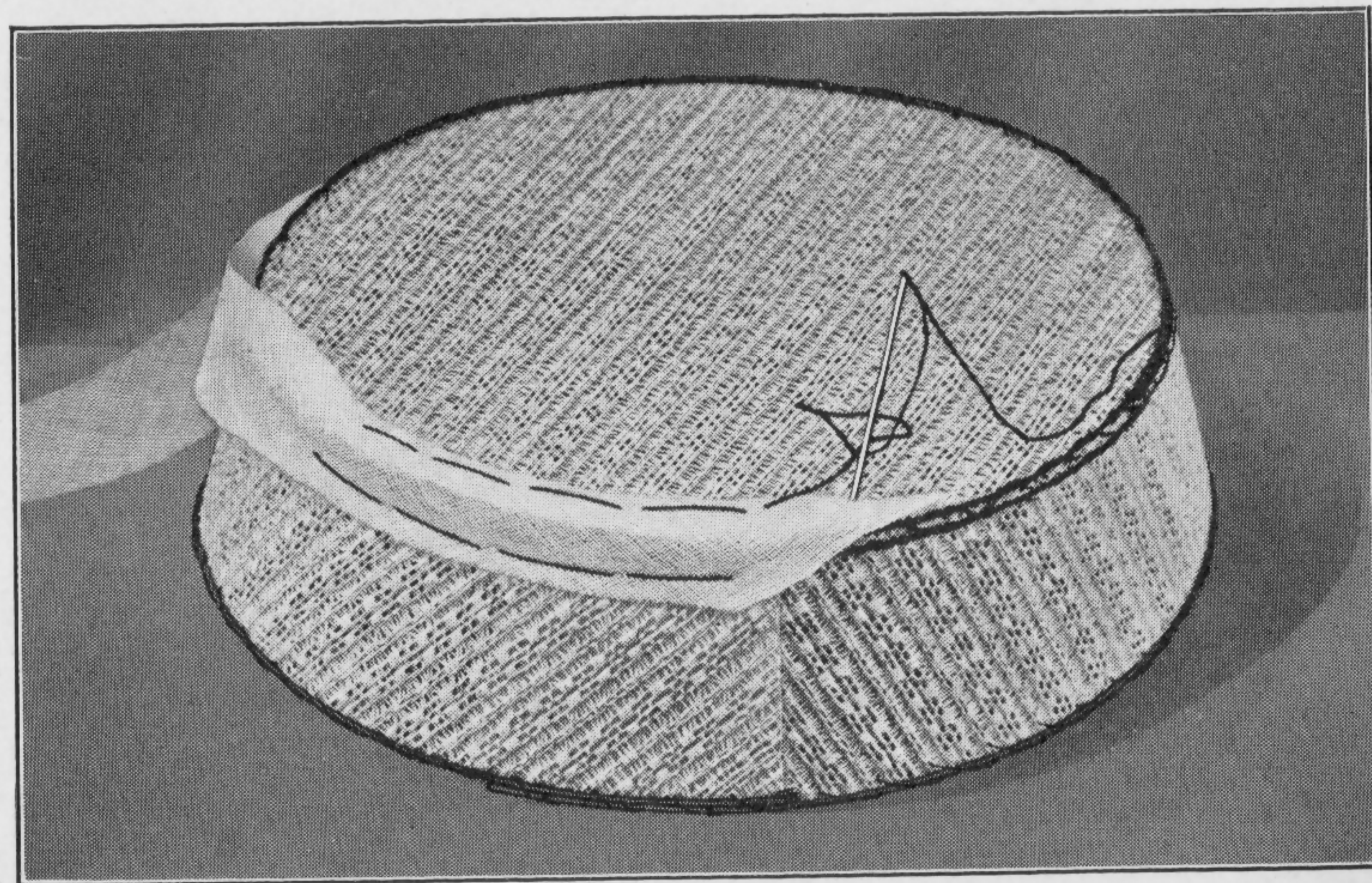


FIG. 39

tip and the side crown. The ends of the strip, at the point where they meet, should be cut off squarely and overlapped a slight amount.

BELL CROWN

36. The bell crown, when made as a solid foundation, is practically the reverse of the sloping crown. The side crown is made in exactly the same way as the side crown of the sloping crown, except that it slopes outwards toward the top, instead of inwards; therefore, the short edge is made 27 in. long, overlapped 3 in., and thus formed into a band measuring 24 in. around the bottom. The pattern for this band is formed in the manner illustrated in Figs. 36 and 37. If the desired slope is not obtained with the first pattern prepared, another may be cut, closer to the point of the folded newspaper. The tip is made of the size and shape of the larger, or upper, end of the side crown. Both parts are wired at their edges and then sewed together by overcasting.

37. Another way in which a solid foundation of the bell-crown shape may be made is to use a wire frame of the desired shape as a form. Take a strip of soft paper, such as newspaper or tissue paper, and pin it to the wire frame, taking care that it lies flat against the side crown all around. Then, with the shears, trim it off close to the top brace wire and the head-size wire, unpin the strip, and lay it out flat. This will then be an accurate pattern by which to cut a side crown of lacette or elastic cloth. The size and shape of the tip may be obtained from the wire frame in the same manner. Other shapes of wire frames may be used as patterns, and may thus be duplicated in elastic cloth, buckram, lacette, etc.

SHAPING CROWNS ON BLOCKS

38. If a large number of crowns of a certain style are to be made, they may be produced by stretching buckram over blocks, or shapers, having the outline of the crown desired. Such blocks, made of plaster of Paris or carved from pieces of wood, cost from one dollar up, according to their size and shape. This being the case, it would not pay a housewife to purchase one for the purpose of making a crown or two; but a milliner, intending to shape a considerable number of crowns, would find it worth while to invest in a block. The method of making a dome crown over a wooden block will be described to indicate the operations to be followed. The block, shown at *a*, Fig. 40, is a smooth, solid piece of wood having

the shape of a dome crown. A piece of buckram *b* at least 14 in. square is cut and dampened with warm water until it is thoroughly wet and pliable. It is then stretched over the block by being pulled down along the sides. After it has been stretched down from front to back, drive in the nails *c* and *d*. Stretch it from side to side and drive in the nail *e* and a corresponding nail on the opposite side. These four nails will hold the buckram in place temporarily.

39. Take a heavy, tightly twisted cord *f*, Fig. 40, tie the end of it firmly to the nail *d*, and wind it around the block beneath the

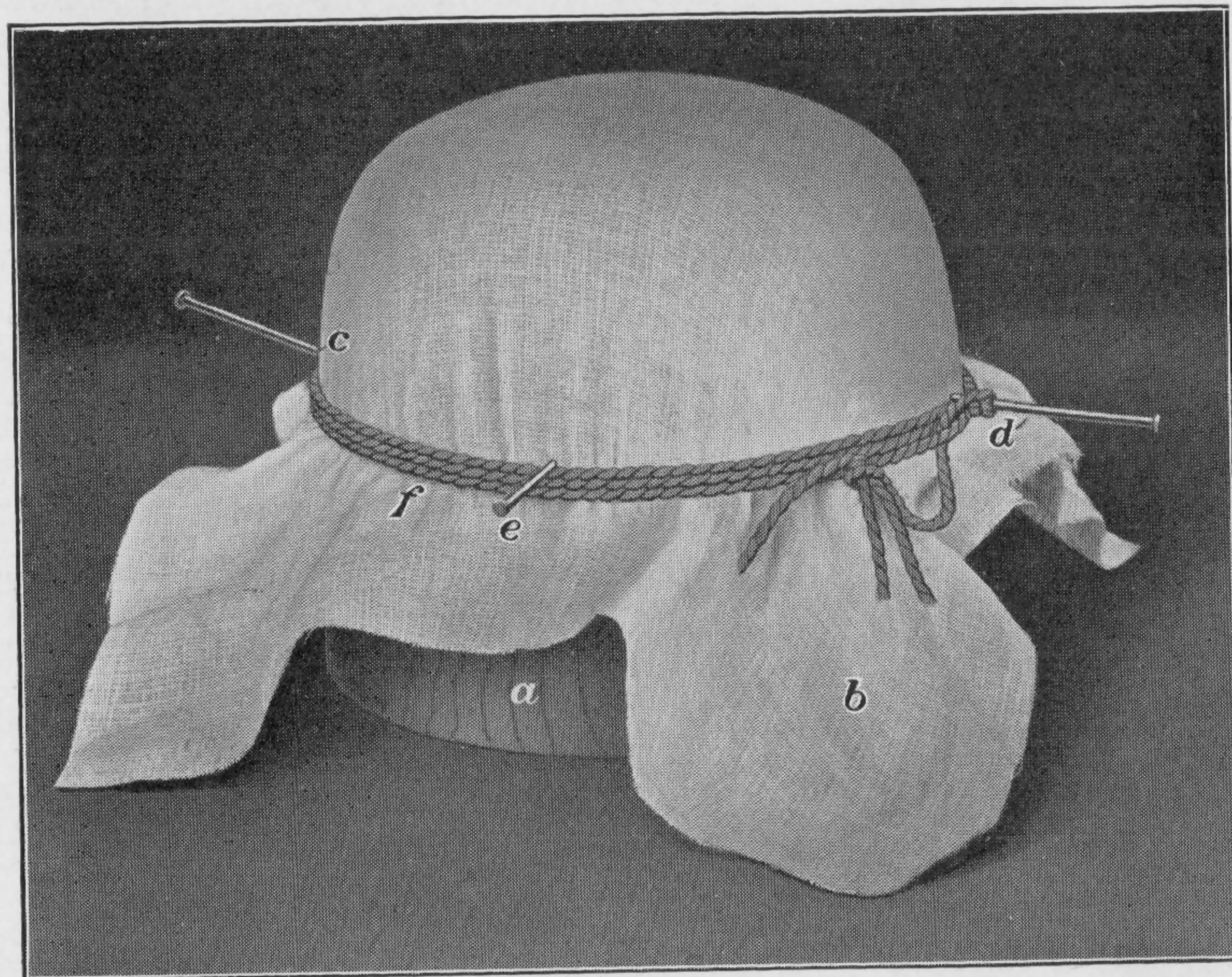


FIG. 40

nails, drawing it very tight. Then grasp each of the four corners of the buckram and pull it down, at the same time pressing out the wrinkles that were formed under the cord. Pull down at the sides in the same way, and then at other points all around. By repeated stretching in this manner the buckram can be drawn very snugly over the block and few, if any, wrinkles will remain. When the buckram is as smoothly fitted as possible, set the block aside until the buckram is dry, which will require only a few hours. Cut the cord *f*, remove the nails, and strip the buckram from the block. Then

take the shears and trim off the buckram along the crease or bend formed by the cord. This step is shown partly completed in Fig. 41. When the crown has been trimmed all around, fasten a piece of brace wire to the edge by overcasting, and it is ready to be attached to a brim.

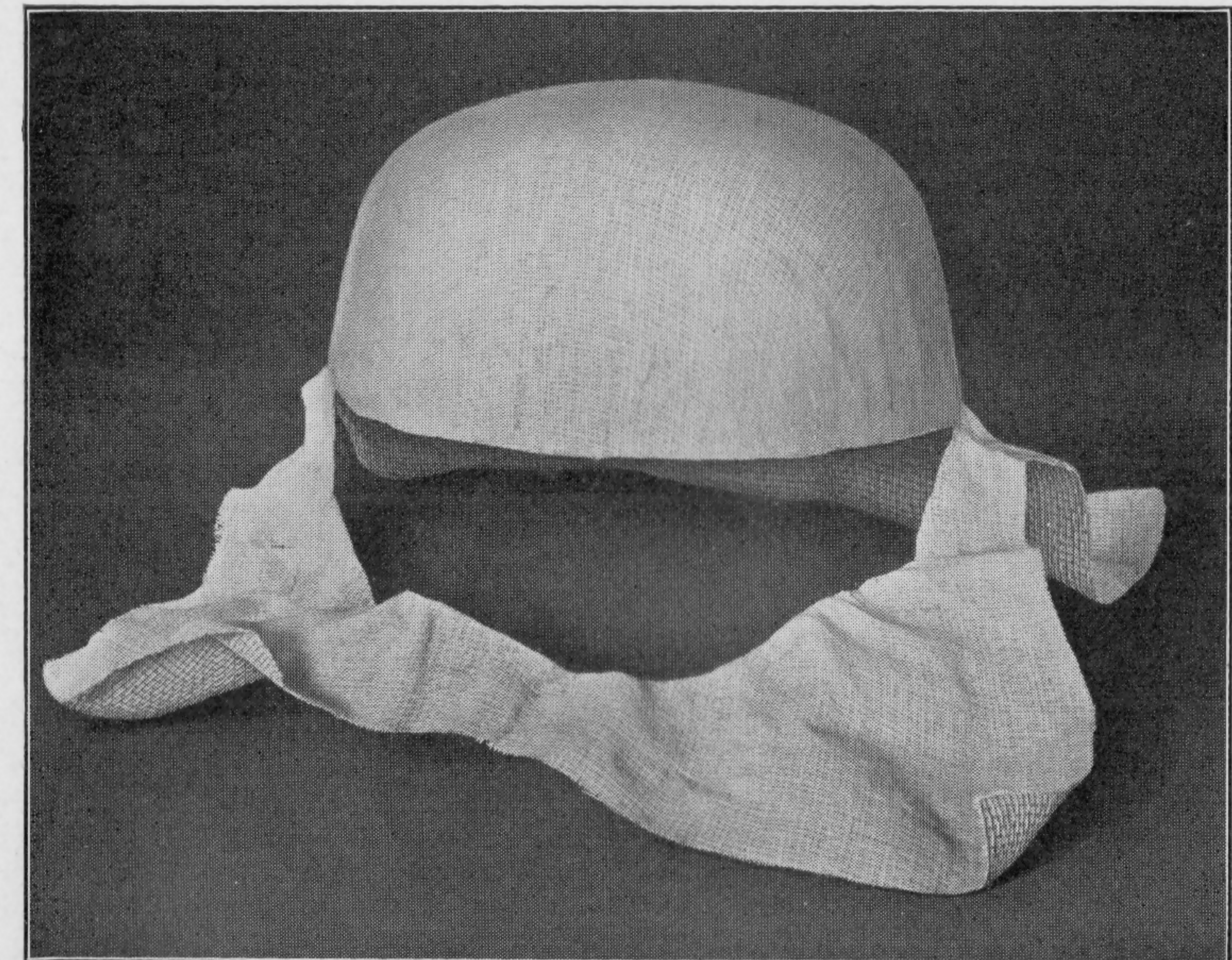


FIG. 41

In Great Britain, neither wooden nor plaster-of-Paris blocks are used; instead, a wire crown of the desired shape is constructed of No. 19 brace wire. This frame is made with a large number of support wires and brace wires, so as to be exceedingly stiff and strong. It is covered with wadding, to produce a smooth surface, and the wet buckram is then stretched over this.

SOLID FOUNDATIONS

(PART 1)

EXAMINATION QUESTIONS

- (1) What is the difference between the tam crown and the baker's crown?
- (2) How should the shears be held when cutting buckram?
- (3) Explain how a pressed buckram crown can be reduced in size.
- (4) Fold a piece of a newspaper and cut it to make a circular pattern for a plateau 16 in. in diameter, as shown in Fig. 26 of the text. Send this pattern with your answers to these Examination Questions.
- (5) Mark the eight equally spaced points along the edge of the paper pattern required in answer to question 4.
- (6) (a) For what purpose are compasses used? (b) If a circle 12 in. in diameter is to be drawn with the compasses, how far apart should the points of the legs be set?
- (7) How is a crinoline apex crown supported and prevented from losing its shape?
- (8) What is meant by: (a) the side crown? (b) the top crown?
- (9) Cut a circular pattern 11 in. in diameter, fold it as shown in Fig. 33 (b) of the text, so that its edge measures 27 in. around, and pin down the fold. Send this pattern with your answers to these Examination Questions.
- (10) How is it possible to distinguish between the right and the wrong side of two-ply buckram?
- (11) Explain how a pressed buckram crown can be enlarged.

(12) If a head-size wire is to be used as a guide for marking out an oval on buckram, how can it be held so as not to spring while the marking is being done?

(13) If a pattern for the side crown of a sloping crown or bell crown does not have enough slope, how should the second pattern be cut?

(14) What is meant by a head-size band?

(15) What material is most commonly used in the construction of hand-made solid frames?

(16) When a tip and a side crown have been stitched together, how are the wires covered to produce a smooth edge?

(17) How is the head-size band marked off into eight equal parts?

(18) Cut a pattern for the side crown of a sloping crown, similar to that shown in Fig. 37 (a) of the text, folding the paper and cutting it as shown in Fig. 36. Make this pattern 3 in. wide and 27 in. long along the lower edge, and mark off 3 in. on it for overlap. Send this pattern with your answers to these Examination Questions.

(19) Describe how the wires are attached to the upper and lower edges of the head-size band.

(20) Describe the method of cutting a strip of uniform width if no cutting gauge is available and the material is too soft to be marked easily.